

# THE AUTOMOBILE MAGAZINE

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Number 1

One Madison Lane, New York



## It is a Proven Fact

... that one **Pope-Waverley Electric** will perform in less time, and at less cost, the same service that has heretofore taxed the endurance of two or three horses, to say nothing of a stableman and a boy to drive and keep the horse from fretting while

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**Pope Motor Car Co.**

Waverley Department  
INDIANAPOLIS, IND.



# *The* Automobile Magazine

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# Oldsmobile

## WINS First Prizes in English Reliability Runs

The highest awards in Class A, in the big English Event captured by the favorite American Runabout.

The Oldsmobile, in open competition with all the other standard light motor cars of the world, carried off first and second prizes, gold and silver medals, in the recent English Reliability runs. The competition extended over eight days—on three of which it rained heavily. Tests included eight days non-stop runs averaging from 100 to 150 miles a day, hill-climbing tests, noise tests, dust-raising and brake tests, and other points not noticed in American competitions.

No other machine in the same class received awards.

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When visiting the Madison Square Garden Automobile Show, be sure and see the Oldsmobile line in spaces Nos. 75, 76 and 77. The Oldsmobile line will be seen in the Chicago Automobile Show in The Coliseum in spaces Nos. 57, 58, 73 and 74. For complete information about the Oldsmobile, see our nearest agent, or write Dept. K.

## OLDS MOTOR WORKS

DETROIT, U. S. A.

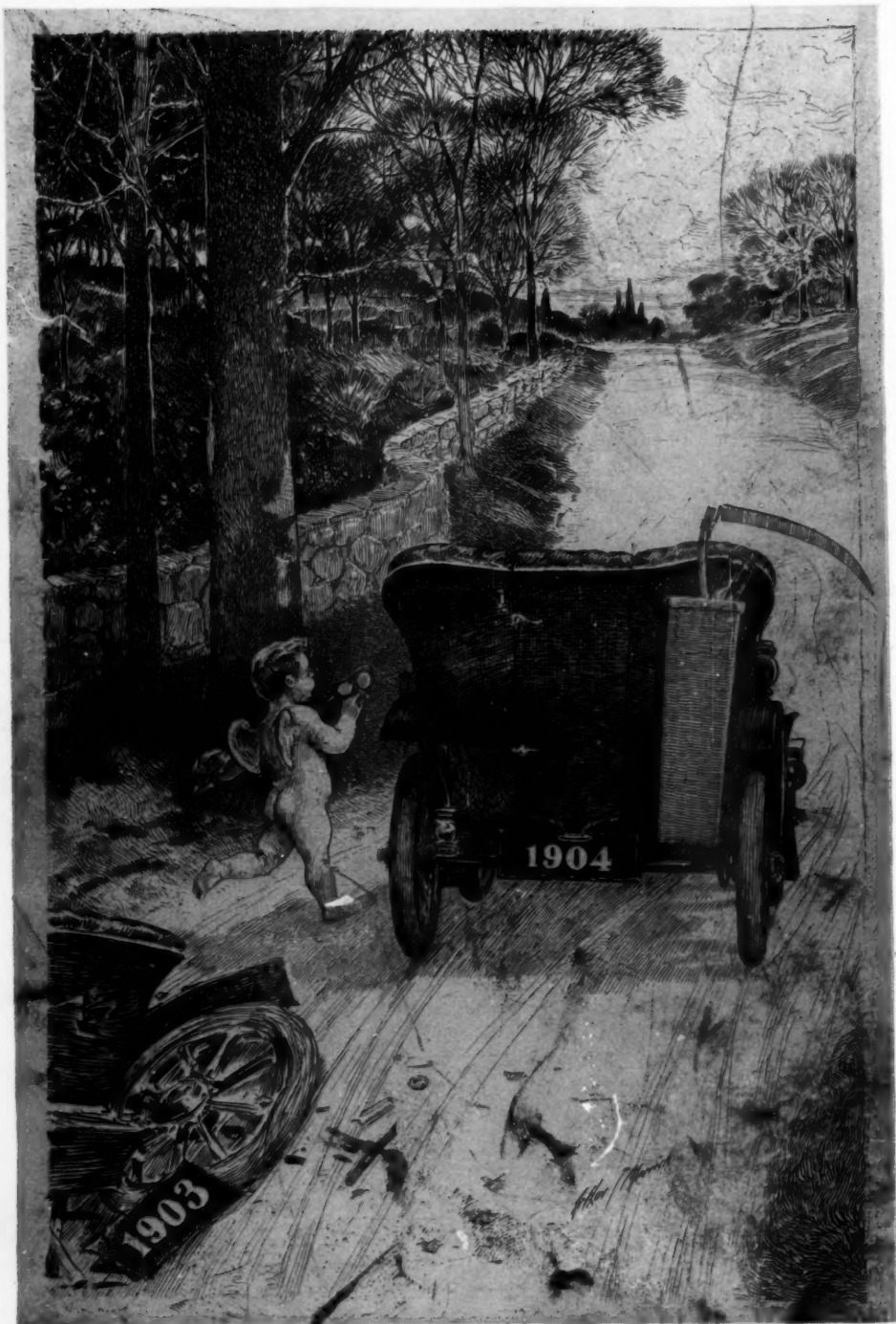


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of Licensed Automobile Manufacturers





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"CHANGE CARS!"

# THE AUTOMOBILE MAGAZINE

VOL. VI.

JANUARY, 1904

No. 1

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## Retrospect and Prospect

*By Robert Bruce*

**I**T hardly seems possible that we have run nearly the whole length of 1903, and that, therefore, another year opens up immediately ahead of us. Events in the great and growing world of automobilism have followed one another so rapidly for a twelvemonth that one loses track of abstract time and is obliged to consult the calendar to get new and correct bearings.

Only a little while ago, speaking as it seems rather than as it is, we observed with surprise and admiration the newest products of the industry at the New York and Chicago shows. Those models are new no longer, and now prospectuses and announcements of 1904 machines are "thick as autumn leaves in Vallambrosia," while advance notices of the January and February exhibitions reach the public through a multitude of channels.

The race meets of the North and East have been over for several weeks, and touring interest—where it has not lapsed altogether—has turned southward and to the Pacific coast, where a more comfortable winter climate gives the outdoor sport a chance to flourish uninterrupted throughout the year. Even as we write, the clans are getting ready to gather at the Ormond-Daytona tournament, January 27-30, closely following the Madison Square Garden show, with every promise of a successful and record-

breaking meeting. The 1904 Gordon Bennett race, to be held over a German course, thanks to Jenatzy's winning of the 1903 event in Ireland, is already casting its shadows before, as nominations have been in order for some time, and the trial list will be closed by the time this appears in print. America will, of course, be represented, and will doubtless lose again (experience in long-distance road racing is not had in one or two years), though it is hoped that the defeat will not be as disastrous as it was this last time.

Automobile racing has been coming more nearly to its own in the United States, with a great deal of progress during the past year. Handicapped, so far as road events are concerned, by the unsuitableness of our highways, and by the fact that the few available tracks in this country are widely separated and loosely affiliated, the racing spirit has been circumscribed and the notably successful meetings comparatively few in number.

Perhaps the most characteristic development of the passing year in the speed-making line has been the designing and building of special racing cars by a number of the manufacturers. There has been in consequence a harvest of "freak" speed machines (not strictly automobiles), with names as odd and curious as their shapes, among them, the Packard "Gray Wolf," the Olds "Pirate," the

White "Turtle" and "Snail," the Stearns "Dragon," the Winton "Bullet 2" and "Pup," the Baker "Torpedo Kid" and that familiar track character, the Ford "999," with which Barney Oldfield won his fame.

These queer speed cars have added an element of picturesqueness to the track events of 1903 that has been unique, and the wonder is what the makers yet to enter the racing field (there are rumors of many) will do for equally startling appellations for their machines. It will take some ingenuity, to say the least, for the denizens of the average menagerie are pretty well represented now on the list. As a matter of fact, the building of these speed machines is only a bizarre side-issue of the industry. Automobiles purely for racing purposes are creatures entirely without any claim for utility. The public may be willing to pay their money to see them race one another, but at the same time purchasers are insisting more and more upon vehicles that will serve the all-around purposes of business and social life—that will go ten miles or a thousand and can be depended upon in all reasonable weathers, and on all ordinarily-met grades. At the same time the severe work required of automobiles, especially in this comparatively new country, is being performed with increasing satisfaction.

Motive powers are gradually being strengthened; uniformity in operation is nearer approached, and the integrity of each part better maintained. Less attention is paid to the discovery of new powers and novel means, and more care given to perfect that which is already had. The result is a considerable decline in the number of mishaps due to unreliable powers and broken parts. There is a corresponding advancement in the assurance one may feel in giving his machine a wider range of travel and speed. The area of the mo-

tor vehicle's use is extending principally by the growing confidence of users in its capabilities as proven in service. The real test is in a motor car's ability to carry operators and passengers with comfort and certainty over the streets and highways as they are, not as the far-off future may give them to us. All other requirements than this, not even excepting speed, are less essential, though all of them are important in the improvement and ultimate perfection of the self-propelling machine. Toward this useful end the special efforts of the past year have been largely directed.

Its motive power is no longer the weakest part of an automobile's structure. That distinction has been shifted to its pneumatic tires—with very little prospect for relief until rubber is rendered more nearly equal to the severe strain of carrying heavy loads at speed over rough surfaces, or a substitute of satisfactory wearing quality and resiliency is found. What is now engaging the efforts of the bright minds in the business is the further refinement of designs combining strength, elegance and lightness in body work and fittings; comfort in use, ease of management, sureness in grade-ascending capacity, and better all-around control. Vehicles, in fact, light yet of high power and built with the expectation of maintaining their even speed over considerable distances. When this is a little more completely accomplished, the motor vehicle will become the indispensable servant of all those who are able to avail themselves of its luxury, speed and comfort, in both city and country.

Of an entirely different order were the triumphs of 1903 on the road as compared with those of 1902. The annual Reliability Run was put through the second week in October amid the severest road and weather conditions that ever afflicted an event of this kind; and its only

real and lasting benefit was the demonstration of the capacity of the competing machines and their plucky drivers to survive the unrestrained fury of the elements. On the other hand, the long-anticipated transcontinental tour was accomplished for the first time in the history of the sport, and not alone by one but by three different expeditions, all starting from the Pacific coast, but at three different times. Dr. H. Nelson Jackson and Sewall K. Crocker with a Winton, E. Tom Fetch and M. C. Krarup with a Packard, L. L. Whitman and E. I. Hammond with an Oldsmobile runabout, were the fortunate overlanders, with no other party starting, and, consequently, no failures to record in this line.

Merely touring across the continent, in itself an arduous undertaking, will probably be considered too commonplace for the coming year, however, and there are rumors of a transcontinental race between different makers' teams, if such can be got together. Be that as it may, it is generally agreed that the present ocean-to-ocean records will be badly shattered before 1904 is over. On the touring side, a number of interesting experiments have been made, the autumn tour of the Automobile Club of America standing out prominently in its success and in the good time it afforded those who were fortunate enough to take part in it. The route was from New York to Boston by the Connecticut River Valley and returning by the Berkshire Hills and the lower Hudson River. Club touring is all too little known in this country, and there is plenty of room for it to grow into something worth while, the increasing number of automobile clubs east and west making a considerable program possible at any time from spring to fall.

Practically the same series of shows that was held last winter is now in prospect; in fact, the first of the great shows

is at this writing—mid-December—already on at the Grand Palais in Paris. The cable reports it very largely French, as the previous five have been, but with more than the usual number of visitors from other countries. Out of several hundred exhibitors, eighty-eight manufacturers of complete machines have the liberal space allowance of eighty square meters apiece, which enables the spectacular display of world-famous models in a way to touch the pride of the patriotic



New English "Side Door" Phaeton

Parisian. Among modern peoples the French are the most unreserved in their worship of the automobile, but one never looks to the gay capital on the banks of the Seine for an impartial or truly representative exhibit of the world's product. Our own Madison Square Garden show follows next, January 15-23, and so great was the demand for space when the allotments were made in November that a number of late applicants were denied accommodations of any kind.



and greatly reduced space was the general rule.

Not only the main auditorium and the first gallery, but also the second gallery, basement and restaurant were all taken to supply insistent demands for representation. On account of the general curtailment of space, some of the manufacturers will be able to display only a single vehicle—an enforced economy which not all will relish. Heavy machines are to be placed on the main floor and in the basement, light machines in the restaurant and on the first gallery floor, while parts and sundries will accommodate themselves as best they can on the second gallery floor and in the nooks and corners of Manhattan's greatest building. The show week of the American automobile industry has passed beyond the one-building stage for all time, and the problem of what to do for the future is as puzzling as ever. The suggestion already made in *THE AUTOMOBILE MAGAZINE* that an autumn camp be planned, in which the show of well-forward models, which are growing in number, shall combine with a great outdoor function, with unlimited space, may be brought about by the sheer force of necessity.

Then there will be the Chicago show, at the Coliseum, February 6-13, and a number of minor exhibitions, including Detroit, Buffalo, Boston and Washington, D. C.; but the last and most representative of all the world-shows will be that held at the Crystal Palace, London, February 12-24. This will be the most representative because it will draw all the leading manufacturers of the British Isles and the principal French makers will cross the Channel to display their newest products to a people who are such good and regular customers of theirs. Besides these, a number of the best American makes have agencies in England, and these, too, will be brought somewhat together, the whole giving a

really international character to the exhibition. Our New York and Chicago shows will be international, but not in so broad a sense. The Crystal Palace is the most suitable building for the purpose in Great Britain—1,608 feet long, 390 feet wide across the transept, and 175 feet high. As the name would imply, this building is of glass, and in clear weather the light is always good. The grounds are nearly 200 acres in extent, with splendid roads for short trial trips by intending purchasers.

1903 has seen a considerable increase in the membership and influence of the American Motor League, the first and best mutual association of American motorists. A good working organization has been built up by the present board of officers, which consists of Isaac B. Potter, New York city, president; Chas. E. Duryea, Reading, Pa., 1st vice-president; W. Grant Murray, Adrian, Mich., 2d vice-president; S. Wallis Merrihew, New York city, 3d vice-president; Robert L. Stillson, New York city, secretary; Frederick B. Hill, Boston, Mass., treasurer, aided by efficient committees on legislation, road improvement, local organization, touring, technics, membership, sign boards, racing, press and hotels. Local consulates have been appointed in a great many places, after the old L. A. W. plan, which worked advantageously during the height of bicycling in this country.

The League has already collected a vast amount of data from many sections of the country, and will issue a road book for each State or section as soon as its membership in the organization is large enough to justify the expense. As a beginning there will soon be published a "Book of Important Routes in New York, New Jersey, Vermont, Massachusetts, Rhode Island and Connecticut." It will contain about 150 map pages, including index maps, and has been pre-

pared at great care and much expense. The routes mapped and described in this book cover a total road distance of over 3,500 miles, and the work will be given out free to each member of the League in these States. Practical work of this kind pays, and it opens the way to a many-sided usefulness in time to come. A long list of "official hotels" has been selected, but the plan at first adopted of requiring a discount to be given to league members has been abandoned, on account of the temptation at times to lower the quality of the service.

Meanwhile the American Automobile Association has made a radical departure from its original plan of being an association of clubs merely, organized primarily for the control of racing, and has entered upon a campaign of solicitation for individual memberships. An amendment to the A. A. A. constitution was necessary to do this, and since the new policy has been inaugurated a regular secretary, Mr. C. H. Gillette, has been engaged. This means that the two organizations are trying (or will soon be trying) to fill practically the same field, with a likelihood of more or less clashing before another year rolls around.

By the first of the year the new board of officers of the Automobile Club of America, elected November 16, will be settled down to the considerable work ahead of it. President Albert R. Shattuck retired voluntarily after three years of appreciated service, and Winthrop E. Scarritt, the former 1st vice-president, succeeded him to the chief office of the club. The other officials for the ensuing year, elected practically without opposition, are as follows: Henry Rogers Winthrop, 1st vice-president; Harry Payne Whitney, 2d vice-president; W. K. Vanderbilt, Jr., 3d vice-president (re-elected); Jefferson Seligman, treasurer (re-elected), and S. M. Butler, secretary (re-

elected). Dave H. Morris and Sidney Dillon Ripley were re-elected governors to serve for three years, together with Ex-President Shattuck, who succeeds Harlan W. Whipple. Arthur Iselin and Mr. Whipple were elected governors to serve for one year. The report of the membership committee showed a total of 464 members, of whom 395 own one or more automobiles. It is estimated that in all something like 500 machines are owned by the club members collectively, of an aggregate value of \$1,500,000. One of the first matters to come up for decision among the new executives is the question of electing to membership any professional American driver who may be otherwise eligible to compete in the forthcoming Gordon Bennett race.

1904 improvements in the design and construction of automobiles are the result of consistent enterprise, the badge of the industry nowadays, influenced and aided by the general advance in manufacturing methods. So widespread is the work going on, and so various the results achieved that the attempt to reflect it all accurately and in cold type is like trying to grasp a globe so large that the hands obtain no hold. The general lines of development have been revealing themselves in incidental ways, however, for a six-month. Privileged visitors to the laboratories and factories have kept more or less in touch with the new features, and one by one they have come to light either by an announcement of the makers or through incorporation in well-forward machines. Fashion has had a large, but never a dominating part, though at her behest a large number of experiments and innovations have been made each year. These may prove to be genuine improvements, or they may be signs of the willingness to cater somewhat to the public expectation for novelties.

It is well to remember in this connection that the automobile could not have

been brought so soon to its present state of efficiency without corresponding advances in general manufacture. A thorough acquaintance with the various processes of wood and metal working is essential to the designer and builder of high-class motor vehicles. Such knowledge not only enables him to select the most suitable materials for each part of the machine, but it will guide him also in the most advantageous and most economical use of them. The demands in automobile construction are more exacting than they are anywhere else in everyday engineering. While guarding against excess of weight, there must be no great sacrifice of strength or durability. No severer range of requirements was ever demanded by a machine of any description.

The immense amount of work that has been going on in hundreds of workshops, with a view to the further improvement of the gasoline motor for automobiles has brought out a mightily interesting group of machines; and those whose largest faith has always been with this type will have a great deal to think and talk about from now on. Satisfied that both forms will exist side by side, a truce seems to have come between the partisans of the vertical motor at the front and the horizontal motor at the rear or underneath. For light pleasure vehicles the motor at the rear is preferred by many because it brings more weight on the driving wheels, aids steering and lessens the tendency to "skidding"; but for heavier models the motor at the front is apparently getting the better of the argument. Purchasers may have an abundant choice among either styles.

There is an evident increase in the motor powers of the larger vehicles, serving the important ends of traction capacity and durability, adding to the confidence of the distance rider, with ultimate economy of operation for the work

required. The extremely high-powered European racing cars will soon have their American counterparts, too, announcement having been made that F. A. La Roche, of the American Darracq Automobile Co., has designed and ordered a 180 H. P. racer for track use in 1904, to consist of two four-cylinder 90 H. P. engines, capable of being worked together or separately. It looks very much as if our racing cars were to become more than ever a class by themselves—the widest range of powers as well as freaks, many of them, in shapes and names. Extreme powers of this kind, like the special cup-racing craft built year by year, are useful only in a limited way; but the increase from 20 H. P. to 24 H. P., or a change from the twenties into the thirties, for the big showy cars, especially such as are built on "foreign" lines, seems to appeal to the sentiment of many people who are able to indulge their fancy.

Luxury is counting for more and more in American automobile construction. The roominess of the British and Continental designs, wider tonneaus and additional door widths, for instance, are already coming into vogue over here, with certain features of "handiness," in which the finished products of this country invariably surpass all others. Decidedly ingenious compartments for the tourist's baggage, complete portmanteaus, in fact, are provided in the higher-priced road cars, with cleverly placed "pockets" for the safe carriage of other small articles. Working parts are made more easily accessible than ever before, but over the simplified construction which makes this possible, schemes of color decoration may run riot. Every "smart" chauffeur seems to want a color scheme different from anyone else, and the manufacturer can usually be prevailed upon to humor his customers in a large degree. Longer, easier springs have come in gradually since the motor has ceased to be the all-

important factor; and improved springs add to the comfort of riding as nothing else can.

Points of greatest strain have been strengthened, with heavier axles and motive parts announced by many, and larger-sized tires quite general for large cars. Cylinders are furnished with mechanically operated inlet and exhaust valves, and several models heretofore without canopy top are equipped with this often-useful accessory, with side curtains for protection when riding in storm or against disagreeable winds. Single, double and multiple cylinders each have their staunch advocates, one interesting departure being by the Packard Company, which has added a four-cylinder car to its former single-cylindere line. At least one firm—the Thomas—has pinned its faith to the triple cylinder, deriving its inspiration from some European successes along this line. As a matter of fact, the number of cylinders has been brought to a truce, like the position of the motor; and the wise buyer finds a vehicle that suits him and then leaves that matter to the manufacturer, or else he accepts such a choice as the manufacturer can reasonably allow him. The Mercedes style of bonnet gains one more adherent in the new four-cylinder Packard touring car.

The cheaper models share generously, though not so conspicuously, in the little refinements that are characteristic of the 1904 family of automobiles. A considerable increase of numbers is noted in models listing at from \$600 to \$900, as compared with a year ago; and it is in this class that the average, every-day American of moderate means will more and more pin his faith. Into this class will ultimately come all the essentials of the best possible machine, substantial luxury—little or no mere show—and the highest quality of service given will yield a wide and general satisfaction. The production and sale of these vehicles must

enormously increase within a very few years, for while purchasers for automobiles above \$5,000 are comparatively few, even in this rich, new country, those who might find a perfected machine listing at from \$600 to \$900 a paying investment as well as a source of pleasure are numbered by the millions.

Electric vehicles—temporarily set back by the strong popularity and wide-service range of the gasoline motor—have always had and still have a special rather than a subordinate place in American automobile development. In their particular sphere, for light city use, making social calls and the like, no other vehicle can compete with them. For light delivery service, too, where a vehicle confined to two fixed tracks would be unsuitable, and a horse-drawn conveyance too slow and too expensive, the electric machine is winning its way with many of the progressive business interests of the country. Announcements of new electric models are not made as soon as announcements of gasoline machines—perhaps because they are not in so close a race for the approval of up-to-date society; and, on the other hand, they have comparatively no importations to compete with.

The electric automobile is an ideal supplementary vehicle. With use and room for only one motor car, the average person will probably find his best choice, all things considered, in a gasoline or steam machine of some well-known make. But with use and room for two or more automobiles, an electric model becomes a reasonable if not, indeed, a logical part of one's equipment. Unexcelled for a spin of from twenty-five to forty miles over good roads in fair weather, it should be reserved largely for park and suburban riding, and not put to hard work over rough and hilly country. The long distance tours that have been made on electrics the past fall are



encouraging prophecies, however, for those who would like to use this type exclusively for local and long distances.

The Edison battery is still coming on—if the nearer-sounding rumbles of it are any criterion—but, after all these years of promise, they are still beyond the reach of private owners. Over-credulity is hardly an American characteristic. We are prone to acquire knowledge, and our ears are ever open to the syren song of progress, but should there be a long-drawn-out suspicion of extravagance in melody or libretto, the wrapt silence of the audience is sometimes broken by something other than applause. People who are looking for a high-class electric touring and general service car are striving hard to accept all the statements made in behalf of this new (?) battery, but the general verdict—unchanged in this respect from a year

ago—declares that it is up to some one to make good. Manufacturers naturally deprecate the Edisonian outbursts, because they have instilled the idea into the public mind that present prices are too high, and that the promised battery will reduce them very materially.

As a matter of fact, conditions are such that a first-class electric vehicle cannot be manufactured and sold for much less than present figures at this time. In due course of events prices will doubtless be lowered somewhat, since the constant progress of invention tends to a cheapen-

ing of production. Edison is not the only inventor working to improve the automobile and reduce the cost of manufacture, and their joint efforts will bring results, of which the public will be informed at once through regular channels. Edison's prediction of a cheaper automobile will yet be realized, but the vehicle, when it does come, will be of different construction and finish from the \$2,000 and \$3,000 touring cars of to-day. The cost of such automobiles will always include something more than a motor and four wheels.



The popularity of the steam vehicle has been materially enlarged by the addition of new types and a tendency among makers to adopt the general designs of the gasoline touring car for their corresponding models. The distinctive appearance of the latter—the self-evidently showy, foreign type—has had much to do with establishing

them in fashion, and in order to meet this situation half way the manufacturers of the steamers have been led to develop a general design now recognized as appropriate for their class of automobiles. The tendency this way has not been universal, however, hence the old and the new in design exist side by side, and so they will probably continue to exist.

Along with this tendency to adopt the general lines of the popular gasoline car, and in part on account of it, there has been brought about a somewhat heavier





A FIFTEEN H. P. PHELPS CLIMBING COREY HILL

construction than formerly had, or thought desirable in the early stages of the industry. There has been a general strengthening of vital parts to withstand the hard usage which this type of machine has proven itself adapted to in the reliability runs and elsewhere. Very many people have an instinctive preference for this type—in part traceable to the popularity of the steam engine in the world's transportation and miscellaneous work; and its future as a motive power for automobiles was never more secure than it is to-day.

After all, the quality of an automobile consists not so much in the particular system it is built upon, as in the material and workmanship put into it; and one not qualified to judge wholly for himself could not go far wrong to find out where his personal preference lies, and then

choose according to that preference from among standard manufacturing firms. There is no hard-and-fast principle in construction except that, all other things being equal, the simplest is the best. To improve an already good automobile may demand a more specialized knowledge than the original construction of it. The progress of 1903 has added immensely to the education of our designers and manufacturers, while bringing the final types of American automobiles one degree nearer. This same process will be continued for some years to come, for untiring application and infinite pains are the price of success and prominence in this industry.

Within another month or six weeks practically every American manufacturer who has not done so already will let the cat out of his particular bag, and a com-

prehensive view of the new types and models will be possible. Following its custom in this respect, THE AUTOMOBILE MAGAZINE will shortly publish a more detailed account of the family of 1904 machines than would be possible at this time. Quite a number of the new models have been at this writing on the road, under trial by their factory staff. L. P. Mooers, of the Peerless Motor Car Co., made the first trial of his 1904 Peerless on a trip from Cleveland, O., to New York and Boston during the last days of November.

Interest in the Seldon patent situation abates nothing, since the past two or three months have seen fewer pronouncements, and, finally, a definite joining of issues—in the form of suits against the Ford Motor Co., Detroit, Mich., as well as against an agent and a customer of the same car. Such action on the part of the owners of the patent was inevitable; otherwise, there would have been nothing to justify the existence of the Licensed Association. The nearness of the shows adds to the intensity of the feeling on the part of some, since the Manufacturers' Association, under whose auspices, in part, at least, the principal exhibitions are held, and the Licensed Association are comprised very largely of the same members.

It has even been claimed by some that the independent makers, as the unlicensed concerns have come to be commonly called, were discriminated against in the allotment of space at the big shows. At any event, the public must soon be taken into the controversy, willingly or no, but it is earnestly hoped that open discord will not be introduced into the winter's shows by the drawing of any lines, by notices on stands or other means, between the two determined groups in the American automobile industry to-day. How far-reaching the issue may become is seen, for one thing, in the feeling that

a number of concerns must fight this patent to a successful issue or go out of business, on account of the small likelihood of their being able to secure licenses under any circumstances. The one good result of this controversy has been to keep new concerns of limited experience and frequently more limited means from entering upon the manufacture of automobiles.

It is not so very long ago, as time is reckoned nowadays, that this new and important development in pleasure travel and transportation was fighting its way to a part and place in the practical organization of life. But that era is now passed for all time, and despite the errors, failures and mishaps of one kind and another that have hindered the sport in a local or temporary manner, everyone—barring the professional automobile hater—acknowledged the great good that is being wrought by the motor car, and the bright future of the social and economic movement of which it is the center. The growth of popular interest in automobiling in this country has been rapid, and within the past year phenomenally so. The belief once prevailed quite generally that purchasers of automobiles belonged to one or other of two classes—the very wealthy, who could afford expensive toys, and enthusiasts, who, perforce, must be amused with the latest fad. But every new departure, however great its ultimate value, must pass through this process before being accorded general adoption; and surely the automobile has fought its way through this borderland of suspicion and distrust surrounding the City of Public Confidence.

#### **An Auto Autocrat**

"Well, I have got to go back to horses and a coachman."

"Indeed?"

"Yes! Our chauffeur is so high-toned he won't associate with our cook!"

## How the Automobile Developed

By A. R. Sennette

THE course of development of the automobile has not proceeded so naturally as it usually does in matters mechanical—as, for example, in the railway locomotive. The fact that one manufacturer has been successful with one type of vehicle has caused the untechnical to think that that *per se* must be the correct type; and the influence of fashion has made itself felt, to the prejudice of equally meritorious vehicles which, however, have not conformed to the fashion of the hour.

In 1895, Panhard and Peugeot were typical of the two then prevalent types—the vertical and the horizontal cylinder *genus*. In the Paris-Rouen race also ran a jumpy contrivance propelled by a single cylinder Benz motor, its power transmission being by belting. In the internal economy of these three pioneer carriages is comprised all the inanimate organs upon which the whole evolution has been wrought. Two of the gear-driven vehicles to which I have referred embodied the device—still almost universally prevalent—of a train of toothed wheels sliding into and out of gear laterally.

This *train balladeur*, as the French call it, is supposed to have been invented by the late M. Levassor. Such, however, is not the case, for it was invented for use upon a steam carriage by James Watt. Watt's original sketch is still in existence, and is precisely the so-called Panhard gear. It even shows the method of lubrication by drilling a hole longitudinally

through the shaft, and leading the oil out by lateral holes as required. Levassor tried other expedients, including friction, and no one was more dissatisfied than he with his change-speed gear. I believe his own exclamation was, "*C'est brusque et brutal*," but he added, and herein lies the crux of the whole matter, "*il marche*." This miserable compromise for a gearing of variable ratio works with more or less satisfaction, but always with a fair degree of reliability, and hence its continuance to the present day. Despite the labor which has been fruitlessly expended upon the search for something better, I

trust designers will not grow faint hearted, for had we but a better change, all would be well.

Makers have not given the pigmy electric installations entitled anything like adequate attention. In the first place the switches, the commutators, the contacts, the binding screw arrangements are too

often of the commonest description, and the roughest workmanship, bringing about many *contretemps* quite avoidable. Makers, moreover, seem to think that in no matter how slipshod a fashion the wiring is carried out, it will be equally efficacious.

That no radical changes have been carried out upon the motor by no means proves that they ought not to have been, nor that considerable modification may not be observable in the immediate future.

At first it was thought that the problem of production of an equilibrium mo-



tor, that is to say, one in which the explosions should be equally and oppositely equilibrated, merited very serious study. An equilibrium motor is such, in fact, only when it is working in a correctly normal and perfect manner; but if anything on the one side—be it but a trifling derangement of a valve—be abnormal, then the equilibration immediately disappears. Such motors require a very heavy flywheel, seeing that the explosions only take place half the number per unit of time, and are intrinsically twice as violent.

It is obvious that the whole of the transmission is subjected to much more serious torsional strains, and has in consequence to be made both stronger and heavier. The equilibration also holds good for certain speeds, and there appear to be "critical" speeds at which it is most violent. Moreover, it almost invariably entails additional complication by reason of the necessity for supplementary gear. The last consideration tells in favor of multiple cylinders; the thing to be aimed at obviously is to impart to the propelling shaft the greatest possible number of impulses per unit of time, and these of the least possible violence for a given horsepower. Multiplication of the cylinders reduces their diameter, insures ease in starting, and paves the way for more efficient silencing. From these points of view much might be expected from the eight-cylinder motors.

From the point of view of actual power obtained, however, I think it quite possible that these may not come up to expectation, because we must not lose sight of the fact that even a four-throw crank is an undesirable thing, and when you come to have a long line of eight cranks, loss of power, due to torsional stress and twist is likely to arise. The multiple cylinder effect, however, is so desirable that I am sure we ought to be

thankful to those having the enterprise to make the *essai*. A still more efficient arrangement would, doubtless, be the employment of four double-acting cylinders; the double-acting cylinder problem is a nut not yet cracked by evolution.

Nothing can be more unscientific than the present system of mounting vertical cylinder motors upon the suspension springs of pleasure carriages, and, although they were placed there by the exigencies of rapid inspection and road repair, their *emplacement* does not represent a phase of evolution of a lasting nature.

The thing to consider is what is it we ought really to strive for? It is to produce an internal combustion motor giving off its power by means of impulses analogous to those of the steam engine. In other words, an internal combustion engine *per se* as opposed to an explosion engine. That is the first thing. Then the second thing is so to bring this internal combustion under control that we may increase or diminish the length of time during which it shall act for each stroke—in other words, to control the power of our motor by the length of combustion and subsequent expansion of the gases within the cylinder in a manner very analogous to the automatic varying cut off of a good steam engine.

Nothing can be more unscientific than the present system of mixing the fuel with its oxygen before admission to the motor, nor the derivation of its power by means of combustion so rapid that it may well be termed an explosion. What is wanted in place of it is a means of sustaining that combustion, and of passing fuel into the cylinders in exact accordance with the power required *pro tem*. By this means we should obtain a motor embodying that valuable attribute of the steam engine often spoken of as the "great elasticity" of



its power. A motor, moreover, of far greater efficiency, both theoretical and practical, and of extraordinary simplicity, even when compared with our old and trusted servant the steam engine, if we take, as we must take, the engine and boiler together. Such a motor would at the same time solve the change-speed problem, its range of power would quite equal the steam engine, for from the same motor we should have moderate power with very great efficiency, and great power—when required—with moderate efficiency.

With regard to the immediate future, one would expect to see improvements in the direction of running motors with hotter cylinders—which the introduction of thin steel cylinders will enable to be done—a greater degree of expansion, enabling silencing to be more effectively dealt with; the use of higher initial compression enabling automatic ignition to be made use of, and with it a great advance in simplicity.

Americans have in many instances suppressed the Panhard gear, but they have done this somewhat inadequately by failing concurrently to suitably increase the power of their motors. The change-speed mechanism brings us to the transmission beyond it, and here we see evidence of beneficial evolution. In the earlier carriages the power was eventually transmitted to the road wheels by side chains. The advent of the live axle would seem to ring their death knell.

I am quite aware that the production of a live axle which will not "give" and can be kept in correct alignment is not an exactly simple matter, but experience with live axles has already proceeded so far as to entitle us to prognosticate that side chains will soon be cast off permanently—as they are now apt to be temporarily. Chains bring us to wheels—in these we see no startling development. We note, however, the general

transition from the suspension, or spider wheel, to the timber spoke, a transition in all probability likely to prove a lasting one.

In many of the more carefully constructed modern automobiles, internal brakes have been very properly made use of, and the crude practice of allowing the weight of the brake straps to lie upon the revolving drums is gradually dying out, being replaced by a more rational arrangement of extraneously supported brake blocks—the latter brakes contrasting very favorably with the French shoe brakes—put on the wrong way up and acting on the rubber tire—as evidenced in the earlier of the French-built carriages. A notable feature of the construction is the pertinacity with which the "Jack-in-the-box" still sticks to his post. This functionary, in the form substantially the same as when it was first invented independently by Pecqueur in 1827, and Richard Roberts in 1829, still obtains.

With regard to the framing of self-propelling vehicles, the transition through which this has passed is interesting. For, beginning with timber construction, we find an almost universal reversion to this mode. The majority of the more modern carriages have composite frames consisting of metallic flitch-plates provided with an apology for a flange, produced by setting over the top edge of the medial portion. Not only is the width of flange thus obtained inadequate, but the length of plain flitch-plate left projecting at either end is too great. Having regard to the negligible increase of weight due to the extension of the flange, this should undoubtedly be done. A difficulty, however, presents itself, through the necessity of employing special plant, so that I look upon this merely as a temporary one. The noticeable feature in regard to framing is the gradual discarding of tubular construction. For weighty vehicles I think there can be no doubt that



hydraulically pressed up frames produce the best "engineer's job." A plant is now at work in France, and one is being got ready on our side, so that shortly they will be procurable. Perhaps the most scientific form of frame yet introduced is the aluminium rectangular or "box girder," reinforced by a core of ash, made use of by Messrs. Charron, Girardot and Voigt, and the steel one of similar construction made use of by Messrs. Maudslay on our side.

In regard to the motor no startling or radical phase of evolution has presented itself, but there is evidence of healthy progress, the motor of to-day being a far more reliable servant than its progenitors. With regard to the cooling, the latest device consists in discarding the ventilating *louvres* which had come to be an integral part of the bonnet and inclosing the motor within it hermetically, and aspirating air into this closed chamber by means of a centrifugal fan. All this represents sound progress, but in connection with it we detect the imprint of the faddist.

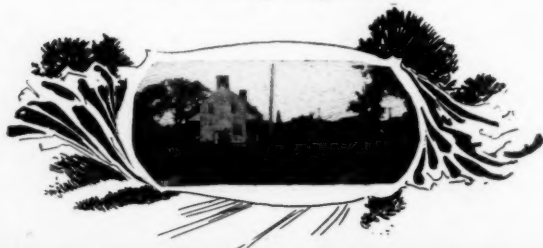
The cellular—or so-called "honey-comb"—cooler by means of which the circulating water is divided up into thin films constitutes a correctly scientific process of refrigeration analogous indeed to certain other cooling processes. But among things to be avoided on motor-cars are joints. Now, the up-to-date cooler may be said to be built up of joints, a vast expanse of soldered joints fairly difficult to make in the shops almost impossible to remake on the road. The ideal water cooler should have only two joints, those of the induction and eduction pipes. The difference in weight of a well-designed cooler practically free from joints and one dependent upon much soldered jointing is negligible in regard to ordinary vehicles. I should like to point out here that my remarks anent water cooling and motors are intended to apply only to ordinary cars, and not to racers, in connection with which it is, of course, legitimate to employ any means of weight reduction and speed acceleration likely to bring one first to the winning post.

### Success

He sighed for literary fame,  
He burned and yearned to see his name  
In all the auto magazines.  
He vowed the world would know him  
well,  
And hear the story he would tell  
Alike to peasants and to queens.

He bought some paper, pens, and ink,  
Then sat him down and tried to think  
Of something that the world should  
thrill.  
Alas! no inspiration came,  
And if he hadn't quit the game,  
He might be sitting thinking still.

He quit but did not give up hope,  
He bought a recipe for soap,  
(The only kind that an auto cleans.)  
His advertising brought him fame,  
And now each month you see his name  
In all the leading magazines.



# Timing a la Mors

By René Dupré

**S**O much interest has been aroused over the Mors timing apparatus, which has clocked all of the most authentic records in America and which will record the passing seconds in the forthcoming events over the Ormond-Daytona track, that I have thought a brief explanation of the ingenious instrument and the way it is used will prove timely.

When the diagram herewith is consulted it will at once be seen that like all really successful inventions, the timer is a marvelously simple affair if the accuracy of its performances is taken into consideration. The timer was designed for the Mors Company by M. Potier and consists primarily of an electric instrument so arranged as to unroll a strip of paper in the usual way, combined with which are electro-magnetic punches and a chronometer. The chronometer is made to close the electric circuit through an electro-magnet punching holes in the strip of paper at every fifth of a second. A second similar arrangement is connected with a bell push, which is held in the hand by a timekeeper.

When the car is about to start the apparatus is set in action, the paper band is unrolled, and the chronometer makes upon it a series of punches at every fifth of a second. When the car passes the starting point the timekeeper presses the

push, and the electro-magnet in connection with it produces a punch in the side of the paper, a short length of which is here shown. The central row of the series of punchings made by the chronometer on this paper represent fifths of seconds (the complete seconds being indicated by additional punchings above the central row), the point at which the car started, and at which the bell-push was pressed, is shown by the punching toward the bottom of the strip.



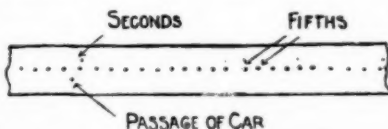
It will be understood that the points of the three punches are in a straight line with one another across the strip of paper.

When the car reaches the end of the course over which its time is to be taken, another observer stationed at that point presses a second bell-push arranged in parallel with the first, and this makes a second punching on the paper in the same way as the first was made, and so enables, by comparison with the other two rows

of punchings, the exact time taken by the car to be ascertained.

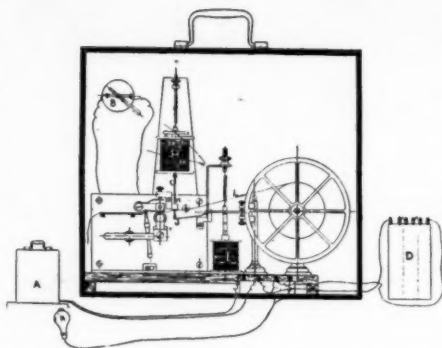
By increasing the number of observers provided with push contacts similarly connected to the apparatus, and stationing them at a kilometer or mile apart, the speed records for the kilometer or mile, or any number of miles or kilometers, with or without a flying start, can be ascertained.

Special apparatus has now been de-



signed by the Mors people for accurately estimating the time elapsing between any of the regular marks on the paper and that at which the punching corresponding to the passage of the car over a given point is registered, and it is claimed that this can be done up to a one-thousandth of a second, should such a division be wanted.

As, however, the equation of personal error of each observer is likely to vary enormously more than this, this part of the invention appears to me to be a rather unnecessary refinement, and I have not illustrated the apparatus em-



ployed for the purpose.

To some extent the latest Mors timer appears to be a retrogression from the earlier form, as it involves the personal equation of observers; the earlier apparatus, it will be remembered, having depended upon the contact of the car with a wire or cord stretched across the course. In order to get really accurate results it would appear that some such arrangement is necessary, as the personal lag of observers is found in such cases to vary, generally from a tenth to a fifth of a second.

## The Man and the Borrowed Automobile

A FABLE

**A** MAN who had acquired the borrowing habit once borrowed an automobile and went for a ride through a country district wherein the native who talks through his horse collar was largely in evidence.

The car the borrowing man had borrowed was a low-browed, rakish craft, and was known as the Red Hot Hoodoo from Hades. Its owner was a man of such vast wealth that the expense incident to standing for rural extortions was to him a mere matter to receive the attention of his valet.

A hard knuckled, scrubby whiskered farmer, who had acquired a grievance against the millionaire owner of the Red Hot Hoodoo, etc., had sworn to whip the owner when the occasion arrived.

The man who borrowed the portable trouble raiser stopped to rest near the

farmer's house. He tied the Hoodoo to the leg of a tree and removed his dust goggles to enjoy the scenery.

The farmer came along, recognized the Red Hot Hoodoo from Hades and naturally concluded that the chauffeur was the owner.

Though his premises were false, he carried out the war plan he had arranged without a hitch. He lambasted the supposed millionaire until he was returned to his home in an ambulance instead of the borrowed automobile.

Moral: Keep in motion when in the enemy's country.

### Hard and Smooth

"It is proposed to put convicts to work quarrying stone for roads."

"Then the way of the transgressor will be hard, indeed."

# World's Records for 1903

(Fastest times on track or road)

A kilometre (.621 of a mile) is the standard distance in Europe.  
A mile is the standard distance in America.

Dist.	Time.	Made by	Machine.	Place.	Date.
1 k.	0.26 2-5	Duray,	Gobron-Brillie,	Dourdan, France,	Nov. 5, 1903
1 m.	0.46	M. Augieres,	Mors,	Dourdan, France,	Nov. 17, 1902

The American record for a mile straightaway is 51.4-5 seconds, made by Henri Fournier (Mors), Brooklyn, N. Y., Nov. 16, 1901.

STEAM					
1 k.	0.27 3-5	LeBlon,	Serpollet,	Dourdan, France,	Nov. 5, 1903
1 m.	*1.01	Geo. C. Cannon,	Cannon,	Providence, R. I.,	Sept. 26, 1903

\*Made on track

ELECTRIC					
1 k.	0.36 1-5	W. C. Baker,	Baker,	Staten Island, N. Y.,	May 31, 1902
1 m.	1.03	A. L. Riker,	Riker,	Brooklyn, N. Y.,	Nov. 16, 1902

## AGAINST TIME-ON THE ROAD-STRAIGHTAWAY

GASOLINE (OVER 1,800 POUNDS)

1 k. (Am.)	0.32 4-5	Alex. Winton,	Winton,	Ormond, Fla.,	Mar. 26, 1903
1 k. (Eu.)	*0.26 2-5	M. Duray,	Gobron-Brillie,	Dourdan, France,	Nov. 5, 1903
1 m. (Am.)	0.51 4-5	Henri Fournier,	Mors,	Brooklyn, N. Y.,	Nov. 16, 1901
1 m. (Eu.)	*0.46	M. Augieres,	Mors.	Dourdan, France,	Nov. 17, 1902

GASOLINE (1,200 TO 1,800 POUNDS)

1 k. (Am.)	0.47	Percy Owen,	Winton,	Staten Island, N. Y.,	May 31, 1902
1 k. (Eu.)	*0.29 2-5	Baras,	Darracq,	Dourdan, France,	1902
1 m. (Am.)	1.17 3-5	Percy Owen,	Winton,	Staten Island, N. Y.,	May 31, 1902
1 m. (Eu.)	*0.48 3-5	M. Thery,	Decauville,	Dourdan, France,	1902

GASOLINE (UNDER 1,200 POUNDS)

1 k. (Am.)	0.35 1-2	Otto Nestman,	Stevens-Duryea	Ormond, Fla.,	Dec. 31, 1903
1 k. (Eu.)	*0.33	Villeman,	Darracq,	Dourdan, France,	1902
1 m. (Am.)	0.57 1-5	Otto Nestman,	Stevens-Duryea,	Ormond, Fla.,	Dec. 31, 1903
1 m. (Eu.)	*0.58	M. Thellier,	Passy-Thellier,	Dourdan, France,	1902

\*Denotes world's records for the class.

## TRACK RECORDS

GASOLINE (MACHINES OVER 1,800 POUNDS)

1 m.	0.55	Barney Oldfield,	Winton,	Los Angeles, Cal.,	Nov. 20, 1903
2 m.	1.54 1-2	"	"	Denver, Col.,	Oct. 29, 1903
3 m.	2.50 3-4	"	"	"	"
4 m.	3.47 3-4	"	"	"	"
5 m.	4.44	"	"	"	"
6 m.	5.42	"	"	"	"
7 m.	6.39 1-4	"	"	"	"
8 m.	7.37 1-4	"	"	"	"
9 m.	8.34 1-2	"	"	"	"
10 m.	9.32 1-2	"	"	"	"
11 m.	10.29 3-4	"	"	"	"
12 m.	11.27 3-4	"	"	"	"
13 m.	12.25 3-4	"	"	"	"
14 m.	13.33 3-4	"	"	"	"
15 m.	14.21	"	"	"	"
16 m.	20.24 4-5	Henri Fournier,	Mors,	Ft. Erie, Can.,	Sept. 26, 1901
17 m.	21.40 4-5	"	"	"	"
18 m.	22.56 4-5	"	"	"	"
19 m.	24.12 2-5	"	"	"	"
20 m.	25.25 2-5	"	"	"	"
21 m.	26.42	"	"	"	"
22 m.	27.57	"	"	"	"
23 m.	29.12	"	"	"	"
24 m.	30.28 4-5	"	"	"	"
25 m.	31.44 1-5	"	"	"	"
50 m.	1.17.50	Alex. Winton,	Winton,	Chicago,	Sept. 18, 1900

# THE AUTOMOBILE MAGAZINE

## GASOLINE (MACHINES 1,200 to 1,800 LBS.)

Dist.	Time.	Made by.	Machine.	Place.	Date.
1 m.	0.59 4-5	Barney Oldfield,	Winton,	Cleveland, O.	Sept. 4, 1903
2 m.	1.59 4-5	"	"	"	"
3 m.	2.59	"	"	"	"
4 m.	3.58 4-5	"	"	"	"
5 m.	4.58 4-5	"	"	"	"
6 m.	5.58 4-5	"	"	"	"
7 m.	6.59	"	"	"	"
8 m.	7.59	"	"	"	"
9 m.	9.01 3-5	"	"	"	"
10 m.	10.06	"	"	"	"
11 m.	11.56	Jules Sincholle,	Darracq,	Detroit, Mich.	Sept. 9, 1903
12 m.	12.59 4-5	"	"	"	"
13 m.	14.00	"	"	"	"
14 m.	15.07 2-5	"	"	"	"
15 m.	*15 07 1-5	Henri Page,	Decauville,	New York,	Oct. 3, 1903

Best mile for this class—59 1-5 sec. by Oldfield, the third mile in the above.

\*Page's 15 mile time only was taken; Sincholle's time from 11 to 14 miles are therefore allowed to stand, although there are presumably slower than Page's.

## GASOLINE (MACHINES UNDER 1,200 LBS.)

1 m.	1.07 2-5	Dan Wurgis,	Oldsmobile,	Cleveland, O.	Sept. 4, 1903
2 m.	2.24 1-2	"	"	Syracuse, N. Y.	Sept. 12, 1903
3 m.	3.31 1-2	"	"	"	"
4 m.	4.40 1-4	"	"	"	"
5 m.	5.49	"	"	"	"

## STEAM

1 m.	1.01	Geo. C. Cannon,	Cannon,	Providence, R. I.,	Sept. 26, 1903
2 m.	2.24 3-5	"	"	"	"
3 m.	3.36 4-5	"	"	"	"
4 m.	4.48 2-5	"	"	"	"
5 m.	5.56 3-5	"	"	"	"
6 m.	7.22 2-5	J. L. Hedges,	White,	Cleveland, O.,	Sept. 5, 1903
7 m.	8.39	"	"	"	"
8 m.	9.51	"	"	"	"
9 m.	11.05 1-5	"	"	"	"
10 m.	12.20 4-5	"	"	"	"

## ELECTRIC

1 m.	1.21 4-5	D. Chisholm,	Baker,	Cleveland, O.	Sept. 4, 1903
2 m.	2.35 2-5	"	"	"	"
3 m.	3.53	"	"	"	"
4 m.	5.11 1-5	"	"	"	"
5 m.	6.29 3-5	"	"	"	"
10 m.	17.58	W. C. Baker,	"	Detroit, Mich.	Oct. 24, 1902

## ROAD RECORDS

### GASOLINE

10 m.	10.26	Alex. Winton,	Winton,	Ormond, Fla.	Mar. 26, 1903
25 m.	1.06 42	Alex. Fisher,	Gasmobile,	Long Island,	Apr. 14, 1900
40 m.	1.33.32	E. B. Shaw,	"	Chicago-Joliet,	Oct. 18, 1901
50 m.	2.30.01	Alex. Fisher,	Gasmobile,	Long Island,	Apr. 14, 1900
100 m.	2.52.90	Emil Voig,	Panhard,	"	Apr. 26, 1902

700 miles in 3 days 20 minutes, Alex. Winton, Winton machine, Cleveland to New York, Nov. 1 to 4, 1900. Actual running time, 38½ hours.

### STEAM

25 m.	58.13	S. T. Davis, Jr.,	Locomobile,	Long Island,	Apr. 14, 1900
50 m.	2.18.27	"	"	"	"

### ELECTRIC

25 m.	1.00.36	A. L. Riker,	Riker,	Long Island,	Apr. 14, 1900
50 m.	2.03.30	"	"	"	"



## How to Govern Speed

By Terrence B. Trenholme

**W**E will imagine that you have passed through all of that kindergarten part of your novitiate wherein you have learned the mysteries of what the various levers, clutches, plugs, gears and such like are. You have attentively sat beside a not over clean young man and been shown by him how near you can come to running into or being run into by some one else, and yet escape. All this and a lot more has been indiscriminately shoveled into your knowledge box, and mentally ticketed "automobile knowledge" by you.

Proceeding now upon your matriculation at the Experience High School, you are alone in the car and are endeavoring to make use of some of that hodge-podge "knowledge" you have. You have duly "turned the crank," wisely examined and tested the sparking, lubrication, fuel supply, etc., etc., and have finally got the vehicle started. You are on the second speed, and as you do desire to secure your stock of experience in large lumps, wisdom will tell you for the first few times second speed should be your favored one. As you go smoothly on your way, each moment gaining confidence and losing nervousness, gently press down the pedal occasionally so you may grow accustomed to its use, and learn how much throwing out the clutch has to do with checking the speed of the vehicle; but be careful to do this slowly, and do not let the car lose too much headway, since picking up again of the

second speed is not the best thing in the world for your gears.

Press down the brake pedal from time to time, and learn how much stopping power it endows you with. When you feel thoroughly at home with the second speed, and realize that you have control of the car, change on to your third, but before doing so be sure to select a fairly good length of straight road to experiment on. The change is effected by pressing down on the clutch pedal; when this is done move the lever

forward into the next notch, and when it is there, let your pedal come up gently. In practising changing speed, it is well to select a down grade, not a hill, but just a very slight incline, as then the car will run on, and you may be more deliberate about your pedal and lever movements. Throw out the clutch frequently, as before advised, and use pedal brake gently to acquire a knowledge of the effect on your third



speed. Practice this well, for by judicious use of the clutch and gentle applications of the foot brake, it is frequently possible to slow up just enough to enable you to get through traffic without shutting down. The writer, in fact, rarely uses the second and first speeds except for starting, running through crowded traffic and hill climbing. There is, however, one instruction he should have given, and that is when you have changed on to your third or top speed, you should have retarded or throttled down the engine speed, and by

moving your accelerator have given your governors full play. It is not wise for the novice to drive at top speed right off the reel. You can accelerate gradually as you gain more confidence and feel more certain of yourself.

In doing all I have advised, you have naturally confined the brunt of your experiments to level roads, if not smooth ones. The next step in your education is hill climbing, and the foremost thing in doing this successfully is for you to acquire the trick of changing speed in conformity with the gradient attacked. This, indeed, can hardly be called a trick—it is almost an instinct. To begin with, wherever possible, it is well to put your car at a hill at its best gait on its top speed (supposing always in this article that yours is the ordinary car of commerce, not the luxurious one of millionaireshood). It will rush up well at first, but gradually you will feel it slackening. You have the throttle wide open or the accelerator down already, and the only thing to be done in case the car will complete the climb on the top speed is to slow down the ignition. Mind and do this, or the motor will knock—indeed, too early explosions with the engine running slow have been known to break crank shafts. So slow down ignition as the car itself slows.

Eventually it becomes apparent that the car is not going to climb the hill on its high speed, and the throb of the engine becomes accentuated. This is the moment, or, indeed, rather before, but you will learn it as you go—the psychological moment to come down to your second speed. Changing down is not so easy as changing up, and requires more practice. When properly done, grinding or groaning should in no way be in evidence, and there should be no forward or backward jerk of the car, which should glide on as though nothing had

happened, and you alone in the car should be conscious that any change has been made. But, as I have said, to do this successfully is an instinct that comes by practice—sooner with some, later with more, and never with not a few. So you have got to practice it until you have proven which of the three classes you are destined for. Pray that it may not be the last named one.

Remember when in you desire for less speed or more power you throw in the gear lower than the one you have been traveling on; that it is not necessary to withdraw the clutch wholly—indeed, some well-known drivers claim that, if the change is effected at the proper moment, there is no need to withdraw the clutch at all; but as for me, I must admit that I have never been able to change down satisfactorily without drawing the clutch, so I am not therefore inclined to advise the novice to try and do so. The clutch should be withdrawn sufficiently to admit of it slipping, just how much varies with every car, and the knowledge of the exact amount will only come with practice.

Do not delay until the last moment for coming down to a lower gear, but drive on that gear upon which you are running to the best possible advantage. That is to say, keep the engine running at its normal speed as long as possible by the manipulation of the throttle and sparking. When the speed of the engine begins to drop slightly below the normal, and you feel it laboring, then change, but not before.

In passing over the top of a hill, do not be in too great a hurry to change to high speed again. The man who bangs in his second or his third before the engine is ready to take the car up shortens the life of his vehicle, besides laying up a store of trouble for himself. The true automobilist will come to feel

for his car, and to learn just exactly what it likes and how it likes it. Remember, automobile is a noun feminine, and when of the genus gasoline, the femininity will be found pronounced to a degree. If you succeed in surmounting the hill on your first, wait until you hear your engine cut out before you change on to the second speed, and then wait again until the cut out comes before you once more slip in your third.

In coming to a stop learn early to avoid using your brakes. The man who rushes up at full speed to his destination and then jams on brakes, should have his car taken away from him. There are times, of course, when the brakes must be used for a sudden stop; but for all ordinary slow downs the clutch pedal should be depressed and the car allowed to slow naturally and easily without being brought up with a bang as though it had run into the wall.

## New York's New Street Laws

*By Thomas V. Brennan*

**H**OW pleasant it would be if the mere passing of laws accomplished anything. Were this so then the regulating and improving of metropolitan street traffic would be an assured success with the new rules of the road lately adopted by New York's Board of Aldermen. Unfortunately politics, as it is played in America, makes the enforcement of all such laws a thing of pull and push—possessing the first, you can indulge in the second to your heart's content, all laws to the contrary notwithstanding.

Perhaps, though, the unexpected may happen, even in so unlikely a thing as this, and the new rules may actually be enforced, in which case the safety and comfort of all concerned will be greatly benefited.

The new regulations require vehicles going to the right into another street to turn as near to the curb as possible, and vehicles going to the left into another street to pass to

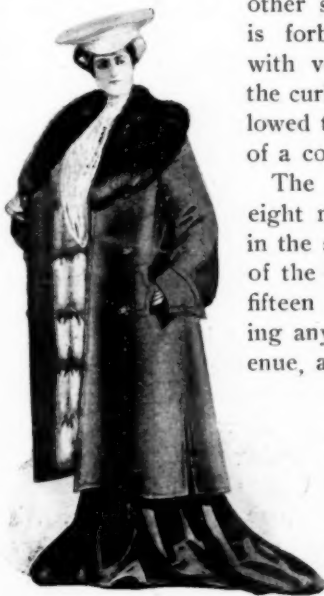
the right of and beyond the center of the street intersection before turning.

A vehicle crossing a street shall do so by turning to the left, so as to head in the same direction as traffic on the

other side of the street. It is forbidden to stop except with vehicle's right side to the curb, and no vehicle is allowed to stop within ten feet of a corner.

The speed maximum is eight miles an hour, except in the sparsely-built portions of the city, where it may be fifteen miles. When crossing any north and south avenue, and when turning any corner, the speed shall be not more than half the maximum limit.

When slowing up or stopping, a driver must signal to those behind by raising whip or hand. Slowly-moving vehicles are ordered to keep as near to the curb as possible. At night lights must be displayed by every vehicle ex-



cept those driven by licensed truckmen. No driver of an unlicensed vehicle shall be less than sixteen years of age, except by special police permission.

Hackmen are forbidden to "cruise" up and down, except they go two blocks or more before returning. Vehicles may not be placed crosswise in Broadway or Fifth avenue or in Park Row, nor in any other street except when actually loading or unloading.

These rules should do something in making New York's swifter street gait less dangerous to the public and toward promoting the comfort of all. Respect of them will not only decrease the accident roll, but will enable traffic to proceed with less interruption and do something toward lessening street blockades, and will thus make the regulations model ones which other communities may copy to advantage.

## Mechanical Intake Valves

By Rodney Drake, Jr.

TRULY, "there is nothing new under the sun," and the mechanically-operated inlet valve is no exception to the old maxim. It had been used in internal combustion engines before automobiles—under that name—existed; while its superior efficiency has been asserted by scientific engineers, and demonstrated by laboratory tests at frequent intervals during the seven years of automobilism.

All this, however, was but as a preaching in the wilderness until its adoption abroad by the Mercedes firm at one end of the scale, and by one of the largest manufacturers of bicycle motors at the other, and while it is to the former that the example is due, much of the foreign popular interest in the subject is owing to the latter, and was the prelude to a general *volte-face* among the principal makers, nearly all of whom are now following the German lead. How far this has been an unmixed benefit is still, one may say, *sub judice*, and food for too often acrimonious discussion.

It is not difficult, of course, to describe the qualities that should belong to a perfect inlet valve. It should open instantaneously, and to its full extent, as soon as the exhaust gases have been

so far got rid of that the pressure in the cylinder is equal to that of the atmosphere, *i. e.*, to such a point that no gas can return along the inlet pipe.

This need not, and probably does not, mean at the exact commencement of outstroke. It should close as soon as the piston, passing its outer dead point, raises the pressure of the cylinder contents to that of the gas in the inlet pipe. This may be somewhat above atmospheric pressure, owing to the inertia of entering gas, and so need not—probably does not—coincide with end of outstroke.

How far, then, one may ask, does the ordinary atmospheric inlet valve fulfil these conditions? First of all, it must obviously open too late, owing to the resistance of its spring having to be overcome; too late again and too slowly, owing to its inertia, and the fault may be aggravated by accidental dirt or stickiness about its stem and seat. Next, it must tend to close too early at slow speeds, owing again to its spring, which may be neutralized or even over-corrected at high speeds by its inertia.

The absolutely correct times of opening and closing must vary somewhat for different speeds, and while the at-

mospheric valve cannot open too early, and may adapt itself somewhat to varying speeds as regards opening, though always a little late, its time of closing may be subject to more error, and that this is considerable under ordinary working conditions may be seen, at times, in a pulsating or hammering of the valve, instead of the sharp opening and closing that is desirable; this also being an active cause of worn and broken valve stems.

The mechanical valve, on the other hand, can make a much nearer approach to perfect instantaneous opening and closing, and these can take place at a definitely predetermined point in the stroke. (The idea of making these points variable to suit the speed does not seem to have been suggested yet, and would probably be too complicated a refinement.) The valve may be heavier, if necessary, without detriment (so valve stems need not be so fragile) and is less liable to be affected by dirt, burnt oil, and the like. As for the alleged extra complication, it is sufficient to ask which gives most trouble, an ordinary inlet valve with a spring, the adjustment of which for best efficiency is a delicate matter, or an ordinary exhaust valve if we exclude the burnt stems, regrinding, etc., which are due simply to its being exposed to exhaust gases, and not to its mechanical movement. The fitting of a mechanically-operated valve simply amounts to having two "exhaust" valves, one of which is exempt from the ills to which an exhaust valve is heir, and in return being free from the troubles of stuck inlet valves and the adjustment of light springs to them.

As regards their increased efficiency, from 5 to as much as 25 per cent. has been claimed, the latter at high speeds; while there are makers who disclaim increased efficiency, though still adopt-

ing them. Undoubtedly they should give it, but it lies with the manufacturers to turn them out with the nearest approach to correct timing for their particular engine, the power of adjustment which is possible with the spring of the atmospheric valve being absent. This, however, considering the difficulty of getting two or four light springs to be and remain of equal strength, is a doubtful loss, and perhaps the strongest argument in favor of the mechanically-operated valve is the improved synchronism that can be obtained in multiple-cylinder engines.

The amount of power lost by want of equality in the performance of the two or more cylinders of a modern motor is hardly realized by many drivers, and it is by no means an easy task to obviate it with atmospheric inlet valves.

It may be fairly admitted, then, good design being presupposed, that a distinct improvement is to be expected from the adoption of mechanically-operated valves, slight perhaps at normal speeds, but increasing at speeds much above or below normal; while there is no reason to expect any additional trouble from their use.

As to the timing of the valve, the general result of various experiments seem to show that the opening should take place when the crank has passed about 10 degrees beyond the dead center, and close at a somewhat less interval after completion of outstroke; but exact data are wanting, and a comparison of the practice of the different makers who have adopted the mechanically-operated would be of more interest than anything I might write.

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#### What Happened

"She married the chauffeur because she wanted some one who could drive."

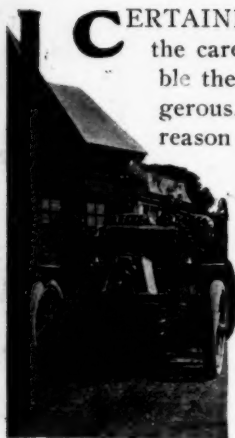
"Well?"

"Well, he drove her to distraction!"



## What the Real Risk Is

By T. V. Broten



**C**ERTAINLY in the hands of the careless or the incapable the automobile is dangerous. So for the same reason is the horse, the gun, the razor, the carving knife, the staircase, the ceiling overhead and the floor underneath; the sea has its perils, but more have died in bed in one month than in all shipwrecks of a hundred years and more put together.

The truth is summed up about the motor vehicle in this: Like everything else, the possibilities are always against its user and the probabilities in his favor; it may be used rationally or irrationally, recklessly or carefully, and yet the care-naught driver who pushes headlong and heedless on his way may get home unhurt, and the painfully careful driver may encounter mishap. Whoever would use the marvelous vehicle can only exercise prudence and trust the improbable chances for the rest; whoever declines it because it is dangerous is not certain to escape it; he may be knocked down at the first corner, for it is everywhere.

Shall we pull the bedclothes over our heads, then? There is no escaping death, for when we go into the most impenetrable hiding-place we take death in with us, lurking as a possibility in every atom of our frame.

But exposure to the insurance company, allegement of "automobile hazard" at least carries with exemption for some time from some other classes of hazard. While driving an automobile, one cannot very well be thrown from an

ice boat or fall out of a balloon, for example, and thus the chances of ordinary travel and of other modes of amusement are reduced almost to a zero. Still the question remains how dangerous and how deadly is the automobile? Not alleged, but actually dangerous.

Police Commissioner Greene has made public some statistics gathered by him in regard to the number of persons killed by being run over in the streets of New York during last year. From these figures it appears that an average of one human being lost life in such manner every day of the year, and yet the deadly automobile was responsible for less than 3 per cent. of them. Truly a most convincing proof of its death-dealing qualities!

Commissioner Greene has taken his figures from the records of the Health Department, and I presume even the insurance companies will not question such figures. The official records thus consulted show that out of the total number killed on the streets of New York by vehicles 172, or almost half, met their death by being run over by cars on the various street railway lines. Trucks and wagons killed 146, while automobiles caused the death of only 9 per cent. Two deaths were due to bicycles and seven to runaway horses.

If the foregoing does not put a quietus upon some of this insurance bugaboo, then there is nothing left but to await the day when business sense will eventually triumph over sensational assertion unbacked by either fact or even half likely fiction. The subject is admittedly new, but for all that is not so very new as to call for any evasion on the part of the underwriter. Insurance cannot evade responsibility. It must deal with the automobile, with acety-

lene gas, and with every instrumentality of progress; it must learn each one and be timorously fearful of none. For some reason or another in America, at least the insurance people, still regard the

automobile as a thing especially devised by the devil to rob poor insurance companies of the scanty dollars. Why such an opinion exists it is given only to Providence to know.

## Volts and Amperes

*By Rodney S. Drake, M. E.*

**W**HEN accumulators are charged from a primary battery it is important to remember that the pressure in volts from the primary battery must be increased after the voltage of the accumulator has commenced to rise. When charging a discharged 4-volt accumulator, which would have a pressure of about 3.6 volts, a less number of the primary battery cells are sufficient at commencement to provide enough power for the necessary charging current, as the primary will have about 4.8 volts or more.

A difference of over 1 volt between the primary and the accumulator is sufficient to charge the accumulator at 2 amperes, but as the charging proceeds the voltage of the accumulator soon rises, and it is necessary to put on more power from the primary cells to keep up the difference of 1 volt between them, or to increase the current to 3 to 4 amperes.

It is impossible to give exact instructions for regulating the current, as it depends entirely on the condition of the accumulator on charge, whether it is very low in voltage at the start, the time it takes to recover its voltage, etc. It should be noted, however, that as the charging current is the result of the difference in voltage between the primary battery and the accumulator, and assuming that this difference is 1 volt, a rise of a  $\frac{1}{2}$  volt in the accumulator as it gets charged will reduce the charging current by one-half, or 50 per cent., or

a fall of a  $\frac{1}{2}$  volt in the primary battery will have the same result, hence the necessity of a resistance and due care in regulation.

Practically, if the primary battery is giving 5 volts, and the accumulator 4 volts, four-fifths of the primary battery voltage is used in overcoming the opposing voltage of the accumulator, leaving 1 volt as the pressure available for the actual current flowing, and therefore making the rise or fall of current proportionate to the increase or decrease of this 1 volt, and not proportionate to the total voltage of the battery.

Accumulator terminals should always be kept scrupulously free from corrosion, otherwise they will gradually become "eaten away" to such an extent that a slight extra jolt on the road will suffice to break them off, and it may then be a matter of great difficulty to effect even a temporary connection. After being thoroughly cleaned and polished, the terminals may be fairly well protected from the action of the acid by a coating of vaseline.

### Two of a Kind

"What would you do if you had one o' dese ye chokermobiles, dat stops when you wants 'em to go an' is so li'ble to best things?"

"Well," answered Mr. Erastus Pinkley, "f'um yoh description, I reckons I could git jes' as much satisfaction by tradin' 'im off foh a mule."

## If Magnets Could Be Screened

*By Prof. Pennington Moore-Page*

**N**INE men out of ten when asked what the ideal motor vehicle would be would reply a perfect electric, wherein the present drawbacks to the use of that cleanly, noiseless, safe and easily handled power had been removed. Permit me, as one of the dissenting tenth, to declare that the ideal vehicle would be one driven by a magnet.

Why, then, do we not have such a vehicle? Well, we would only for one thing—we have no known substance which will act as a screen for the lines of force of a magnet. Give us this, and the balance is so easy to arrange that we need not consider it. If you read the scientific papers, particularly those intended primarily for amateurs, you would be amused to see how often this question bobs up.

The inquirers never tell why they want this information, but everybody knows—at least lots of us do. The chances are they are all working on the same thing. They have invented a perpetual motion machine, and all they need to make it go is some substance that will prevent the passage of the lines of force of a magnet—or, in other words, what substance will screen a magnet just as an opaque substance will screen light.

A magnet will attract a piece of iron. Put pieces of iron around the periphery of a wheel and a magnet near the periphery or several magnets in an outer concentric circle. The magnets attract the iron pieces and the wheel moves until the iron pieces are opposite the magnets. But by this time the motion of the wheel has interposed between the magnets and the pieces of iron a sheet of —.

As everybody knows, the lines of force of a magnet can't penetrate

through a sheet of —, and therefore the wheel does not stop when the pieces of iron come opposite the magnets, but moves on by its momentum until the iron pieces are, say, one inch from the next magnets. By this time the motion of the wheel has moved the screens of — from between the iron pieces and the magnets, and the magnets attract the iron, giving a new impulse to the wheel.

So, there is perpetual motion and the perfect automobile. All you have to do is to find what is the substance that I have expressed by —.

Consider for an instant what the finding of this substance would mean, not alone to automobiles but to the entire world. Alexander, Cæsar, Napoleon made some commotion in their day; but all they ever did compared to what would be done by the man who found a screen for the magnet would not be a ripple on a mill pond compared to the Atlantic Ocean in a tidal wave.

Coal would cease to be mined. Locomotives would consist principally of big magnets with iron armatures on the axles of the driving wheels. Such locomotives could be run from New York to San Francisco on nothing except oil for the bearings.

Ocean liners would be run by magnetic motors. Not a pound of coal would need be carried. The magnetic motors would not only drive the screws, but would also generate electric current for heating, lighting and cooking. A ship could keep the sea at her highest speed just as long as the provisions lasted for the crew.

Everybody would have a magnetic automobile. You could ride across the continent if the roads were good, and there would be nothing to renew

and no expense for motive power. I don't believe there would be any electric light and power mains running through the streets. Every house would have its magnetic motor to generate electric current for heating, lighting and cooking.

There would be no expense except the renewal of the lamp globes. The servant girl problem would be largely solved by electric stoves. Street cars would require no cables or overhead or underground trolleys to send them flying along their way.

Do you ever forget to wind your watch? Well, you could forget it every day. Watches would be run by a tiny

magnetic motor instead of a main-spring as they now depend on.

Now, as a matter of fact, there is a substance that will screen a magnet. That substance is iron. But that will do us no good. In the perpetual motion machine that I have outlined, if the screens were made of iron, the magnets would attract the screens and so stop the machine.

With all this prospect of glory before them, it is no wonder that amateur scientists and inventors want to know what substance will screen a magnet. It is likely the search for a screen for the magnet will be kept up to the end of time.

### Some Shop Talk

**"YES,** indeed," musingly remarked the Representative Burglar, "every day new things bob up that furnish fresh opportunities for money making to the wide-awake, up-to-date man. Every business is alike in this respect.

"You're a joke writer now, ain't you? Well, for instance, there was the bicycle craze, which, coming as it did, gave you a rich subject for squibs, and no sooner did that begin to show signs of wearing out than up comes the Klondike. Why, it was richer in jokes than in gold. Everything ages, and so did the Klondike, that is, speaking from a humorous standpoint, but no sooner did that happen than the automobile came to the funny man's rescue! Am

I not right? Sure! That's only a few instances!

"In my business? Oh, lots of chances spring up just as they do in yours! You see all winter I touched the sums laid away to pay coal bills—this spring I shall pinch the allowances made for moving—in summer there is the summer girl's collection of engagement rings to swipe, and so on! These grafts show no signs of age as yet, but in preparation for the time coming soon when they will, a brand new field of endeavor is opening up. It will make me rich, too. What is it? Why, filching the little pile of coin every family is laying away to go to St. Louis and the Louisiana Exposition."



## It May Happen

*By Jean des Boisenev*

"GENTLEMEN and fellow rough road riders," said the presiding officer in his opening address at the annual convention of the Amalgamated Association of Aggressive Automobilists, "I have to place before you for your consideration and action a communication of some importance which has been received from our friends the enemy, the Proud and Protective Order of Pedestrians, composed, I believe, of people who still have not seen the error of their ways in seeking muscular rather than motor power for transportation purposes.

"As you will remember, gentlemen, we passed a law at our last annual meeting prohibiting automobilists from running down foot passengers or even scorching by them close enough to warrant apprehension. I am pleased to state that it has been most zealously carried out! This petition is the result! Humble and tearful in tone, actually abject in places, it respectfully asks that we repeal the law and let things be again as they were in the old days when men took their lives in their hands when they ventured out on foot!"

"What is the matter with the law, Mr. President?" asked the member from Cossackie in amazement.

"Why, everything in the world, it seems! The petition claims that the alarming increase in divorces, riots, homicide and crime of all kinds during the past year is directly attributable to this law! To quote from the preamble:

"The wicked passions and bestial tempers inherent in man found safe and lawful outlet in damning and denouncing, cursing and condemning, vituperating and vilifying automobilists. The inability of pedestrians to make enraged outcry against automobilists dams this channel, and the passions and tempers thus pent up come in time to flood private and public life, sweeping away peace and happiness and leaving woe and discord behind to mark its path."

"Merciful heavens!" shuddered the member from Oskaloosa, "I move to repeal the law."

"The motion is unanimously carried!" announced the president after balloting. "Gentlemen, the vote shows tenderness and humanity and does the automobilist proud."

## When Wagons Ruled the Road

*Reginald Birkbeck-Brown*

IT seems curious to think, in these days of distance demolishing automobiles, of a time when travel through this part of the country was by wagon. But there was a time when the creaking, clumsy, horse drawn vehicle was the only means of moving. Traveling in a ten horse power gasoline touring car to New York recently, from Baltimore, recalled what Morris Birkbeck wrote so many years ago. For in-

stance, after having commented on the fact that Americans were a migrating people, this British ancestor of mine goes on to say:

"To give an idea of the internal movements of this vast hive, about twelve thousand wagons passed between Baltimore and Philadelphia in the last year, with from four to six horses, carrying from thirty-five to forty hundredweight. The cost of car-



riage is about seven dollars per hundredweight from Philadelphia to Pittsburgh. Add to these the numerous stages loaded to the utmost and the innumerable travelers on horseback, on foot and in light wagons, and you have before you a scene of bustle and business, extending over a space of three hundred miles, which is truly wonderful."

Then he was greatly struck by American manners, for he says: "But what is most at variance with English notions of the American people is the urbanity and civilization that prevail in situations remote from large cities. In our journey from Norfolk, on the coast of Virginia, to Pittsburgh, we have not for a moment lost sight of the manners of polished life. Refinement is unquestionably far more rare than in our mature and highly cultivated state of society; but so is extreme vulgarity. In every department of common life we

here see employed persons superior in habits and education to the same class in England."

But Birkbeck didn't like the hotels. I remember he wrote:

"Three times a day the great bell rings, and a hundred persons collect from all quarters to eat a hurried meal composed of almost as many dishes. Soon after dinner you assemble in rooms crowded with beds, something like wards in a hospital, undressing in public, even if you are fortunate enough to escape a human bedfellow—invectives ones you cannot hope to avoid."

Verily, hotel accommodations in this section have not changed much.

### Song of the Scorcher

My cup is overflowing,  
I've joy in life's brief span;  
At last I have run over  
A mounted policeman.

## European Kilometer and Mile Records for 1903

All the performances which follow in France excepting those marked \*, were made on the road, and all of them which were made in Belgium:

Class of Vehicle	Weight	Seats	Make	Driver	Time	Speed per hour
<b>Kilometer (.62137 of a mile), flying start, level road</b>						
Motor bicycles.....	Under 50 pounds	1	Griffon.....	Lamberjack.	m. s.	kilos. miles
Motocycles.....	110 to 550 "	1	Buchet.....	Rigal.....	0 34	105.88 65.79
Voiturettes.....	550 to 880 "	1	Darracq.....	Villemain....	0 32 1/2	110.42 68.61
Light cars.....	880 to 1430 "	2	Darracq.....	Baras.....	0 33	109.09 67.78
Cars.....	1430 to 2420 "	2	Gobron-Brillié	Duray.....	0 29 1/2	122.44 76.08
<b>Mile (1.60935 Kilometers), same conditions as above</b>						
Motor bicycles.....	Under 50 pounds	1	Griffon.....	Lamberjack.	1 13 1/2	78.92 49.04
Motocycles.....	110 to 550 "	1	Clement.....	Sauvinière..	1 8 1/2	84.94 52.78
Voiturettes.....	550 to 880 "	1	Darracq.....	Villemain....	1 21 1/2	70.81 44.00
Light cars.....	880 to 1430 "	2	Darracq.....	Baras.....	1 3 1/2	91.08 56.60
Cars.....	1430 to 2420 "	2	Gobron-Brillié	Rigolly.....	0 59 1/2	98.52 61.22
<b>Kilometer, up hill, standing start (Chateau-Thierry)</b>						
Motor bicycles.....	Under 50 pounds	1	Griffon.....	Lamberjack.	0 55 1/2	64.74 40.22
Motocycles.....	110 to 550 "	1	Clement.....	M. Fournier.	0 55 1/2	64.74 40.22
Voiturettes.....	550 to 880 "	1	Darracq.....	Wagner.....	0 50 1/2	70.86 44.03
Light cars.....	880 to 1430 "	2	Richard-Brasier	Danjean.....	0 50 1/2	71.71 44.56
Cars.....	1430 to 2420 "	2	Gobron-Brillié	Rigolly.....	0 45 1/2	79.62 49.47
<b>Kilometer, same conditions, with flying start (Gaillon)</b>						
Motor Bicycles.....	Under 50 pounds	1	Griffon.....	Demester....	0 41	87.80 54.55
Motocycles.....	110 to 550 "	1	Carreau.....	Carreau.....	0 41	87.80 54.55
Voiturettes.....	550 to 880 "	1	Clement.....	Holley.....	0 37	97.29 60.45
Light cars.....	880 to 1430 "	2	Darracq.....	Wagner.....	0 40	90.00 55.92
Cars.....	1430 to 2420 "	2	Bayard.....	Hanriot.....	0 38	94.73 58.86
		2	Gobron-Brillié	Rigolly.....	0 33 1/2	107.14 66.57



## My Ideas of Cup Racing

By W. J. Morgan

**I**N the third verse of tenth chapter of Proverbs is found the following: "A prudent man foreseeth the evil, and hideth himself, but the simple pass on and are punished." The 20th verse of the same book and chapter says: "Have not I written to thee excellent things in counsels and knowledge?" With this introduction from a source which has furnished the worldly mariner with a safe chart in all ages, I proceed to call attention once again to the unwisdom of sending a make-shift and unsatisfactory American automobile team to a sure and swift second humiliation in the Gordon Bennett 1904 contest.

It may be remembered that last year I stood almost alone in declaring the overwhelming defeat of the American cup team. For this I was denounced as unpatriotic, weak-kneed, and all that sort of tommyrot; but the handwriting on the wall was quite plain, and of the American team this wall writing said: "Weighed in the balance and found wanting." Time and again I stated that if any glory for America or for the so-called Automobile Club of America, was to be won on the Irish course a mighty good sort of team would have to be sent against the foreign automobile legions to win it. Some of those who attended the complimentary banquet tendered to one of the competitors before he sailed may recall that even

on that festive occasion I warned the company that we were going up against a stiff game wherein we would do our best, even though we were to be pitted against the best men of the world, every one of them a daring and a thoroughly professional driver when it came to handling a racing car.

The result is history, and it was painfully told by the tick of the telegraph. Historical though it may now be, still it was and it is humiliating, and the reward for those who, like myself, gave a friendly warning was only the privilege of saying, "I told you so."

The boasted prestige of American smartness and efficiency was strewn from Ballyshannon to Kildare, and from Carlow to Athy, before the first lap of the cup race had even been begun, and the Irish peasantry of Timolin and Ballitore turned from rejoicing over an expected victory for the Yankees to tears of commiseration because the Americans were even beaten by perfidious Albion.

Not even an approximately correct estimate of the damage done by all this to the export trade in American automobiles can be made, but the one simple fact suffices that the exports of automobiles from this country in October, 1903, was less than it was in October, 1902, whereas under normal conditions there should have been a heavy

increase. The foreign automobile buyers looked on the woeful performances of last July 2 as true samples of what our best machines could do, and they very properly did not want to own an American automobile so long as they had that idea of their capability.

It does not matter what was the trouble with the American cars. The actual results are what a public looks for, and they judged the competing cars in the Bennett race by the results shown at its finish.

What of the sowing? The seeds sown in the Gordon Bennett affair by the American team for the most part fell upon rocky places from either a sporting or a commercial standpoint. The race brought upon us infinite discredit to our sportsmanship, owing to the peculiar excuses made by two of the competitors for their inability to even start, much less finish. The charge of being booby sportsmen was flung in our faces by the press of Europe, and for once the charge had more truth in it than is usually found in such allegations. It is doubtful if an American automobile could have been given away in any part of Europe for weeks after that race, so utterly discredited were our manufacturers by the lamentable exhibition presented to the world on the unfortunate-for-us second day of July last.

Now it is proposed to send another team of experiments for a second slaughter, since slaughter it surely will be. Depend upon it, nothing else can happen, for we have neither the racing cars nor the racing men to drive the cars in a 375-mile race. Judging from the progress made in construction, America cannot hope to have a successful team before 1906. About this year I shall expect to see a fairly representative team provided with proper cars compete in the big international annual with some chance of success.

To be frank while knowing something about the game, having had an opportunity of looking it over in Ireland, and after visiting all the American factories, I do not believe that we have a racing car to-day, or will have one before next July, that can be driven 100 miles at anything like Gordon Bennett racing speed, let alone 375 miles.

Many of the prominent members of the Automobile Club of America, which club is responsible for sending the competing team abroad, must have their own misgivings as to the success of an American vehicle, or else why do they drive foreign cars themselves? I believe the sending of a team should be done by a national association such as the American Automobile Association, or by the American Motor League. No fault could be found with the Automobile Club of America for not wishing to admit professional drivers to their club, which is a social body in every respect; but since the club is only a local affair and can not therefore ever be what its name implies, the selection of a team should be left to another source altogether. There should be enough national pride among American automobile manufacturers for them to enter a most vigorous protest against any club that would send a team of weaklings to compete against the famous drivers of Europe with their superb racing machines. There should be, I say, sufficient pride to prohibit such a thing. It is a stab at American manufacture and American sporting prestige the world over.

The annoyance of being charged with inability to build successful racing machines can be borne with meekness and patience by this country. It must be remembered that the Frenchmen at least have been engaged in such racing since 1895, while 1903 was our first real attempt, though one

American driver did go over some years ago, and won a race from London to Brighton against all comers, which would indicate that our racing machines and men of 1895 were superior to those of 1903. The man who won the race was Charles E. Duryea, then of Peoria, Ill., now of Reading, Pa.

It will be remembered that England and France at the start showed us the way in both racing and making bicycles, but it was not long before we caught up with them and passed them easily in both departments of cycling. The result was that not a few hundred thousand American bicycles were sold abroad, solely in consequence of the invincibility of American racers, both human and mechanical. England has at one time and another led us in such things as boxing, rowing, running, horse racing, etc., but to-day in most of these your Uncle Samuel can give John Bull a little start and beat him. It will be the same with the automobile game later on.

The few concerns who are seeking advertising by providing candidates for the Gordon Bennett race or by offering to provide them, will not find it profitable advertising unless they can make a decent showing in the elimination trials. If these trials were as thorough as they should be, all proposed candidates will find it expensive advertising in the long run. Unless the elimination trials prove more satisfactory than they did this year, no team should be sent abroad for the sole purpose of making a laughing stock of the entire American trade.

Remember what I say, and I am willing to go down as a prophet in this instance, that if a team is sent abroad, and I don't care if they are all Old-fields, they will be so badly beaten that the United States will be looked upon as an automobile joke. Then a still better market will be found for foreign

machines in America, and a correspondingly decreased demand for American machines abroad created.

If the folly is to be committed once more, which I sincerely hope it will not be, let the elimination trials be under the same rules as the race in Germany is to be run under, and if that is done it is safe betting that no team will be sent from this country for the next Gordon Bennett race.

As to the admission of professionals into the Automobile Club of America, I fancy that would be a great mistake, and would serve to lower the tone of the club, and would eventually prove its undoing. While there are a large number of gentlemen who are willing to receive instruction from and mingle with professionals outside of a club, there are very few of them who will care to fraternize with professionals in a social way and make companions of them in a club.

There is no reason on earth, however, why professionals should not be eligible to drive machines in the Gordon Bennett race for members of a club as long as some club has the selection of the team. The rule of the Gordon Bennett race, which apparently prevents this, should be amended or stricken out because it is not lived up to. Does anybody believe that such drivers as Camille Jenatzy, Charles Jarrott, S. F. Edge, J. W. Stocks, Farman brothers, or Gabriel are anything but professionals when it comes to driving? Jenatzy told me at Athy the morning after the Gordon Bennett race was won by him that he would get \$20,000 in cash and two new machines for winning the cup for a German firm. All the really crack drivers in Europe, be they plain *Monsieurs* or *Barons*, have their price for driving cars in a race, and are therefore no better than out and out professionals when it comes to any

strict interpretation of the amateur rule.

The following is a clause however which should be incorporated in the rules of the Gordon Bennett race: Each country must supply drivers who shall be citizens of the country they represent, either by birth or by naturalization. What credit would it be for America, for instance, to send over to Germany an Englishman, a Frenchman or a German as drivers, none of whom had even been naturalized? Germany had two Belgians and one American driving for her last July, but America did better with two native-born Americans and a Scotch naturalized one.

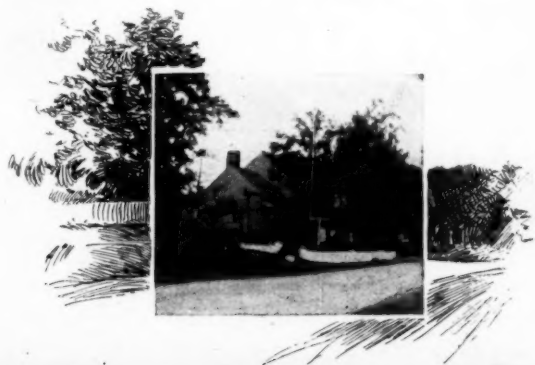
I would like to see such drivers as W. K. Vanderbilt, Jr., and Foxhall Keene representing America, and I believe they would do so too if they could get suitable American racing machines. On speaking to Mr. Keene in Dublin as to why he was driving for Germany, and not for America, he replied that he had been invited to drive for Germany. The inference was plain enough that he had not been invited to do so for America.

Speaking of professional drivers and professionals, the fact seems too often overlooked that professionals are responsible for nearly all great victories in sporting events on both land and water.

Lord Rosebery won the great Derby, but the man who really won it, I

think, was either the late Fred Archer or Mornington Cannon, professionals. The King of England won the Derby with a professional jockey up. W. C. Whitney does not ride his own horses, neither does Oliver Iselin win the International yacht races, since the actual winning is due entirely a professional skipper who is known the world over. Mr. Smathers does not drive his own trotting horses when they break records, so why should an owner of a racing automobile be expected to drive it when he can employ a driver who will risk his life for a very moderate compensation?

There has been a lot of rot, talked and printed, about the question of employing professionals, still no one would doubt for a moment that the racing prestige of this country would be materially enhanced if such drivers as W. K. Vanderbilt, Jr., and Foxhall Keene could be induced to represent America in International contests, yet I for one would not be in favor of seeing those young men run the risk of driving a racing car in the Gordon Bennett race. This is the most dangerous form of automobile driving, and that no one was killed in Ireland was simply a case of Irish luck, especially in the case of Charles Jarrott. A peep at the German course shows it to be a pretty dangerous one, and the same degree of luck found in Ireland may not extend to Germany.





## How to Stop Some Noises

By Preston Howell

**U**NDER the most favorable conditions the automobile is not the most noiseless of vehicles, whereupon it behooves the owner of one to at least do what he can to eliminate as much of the noise making as it may be possible for him to do away with.

Among the important noise creators which are capable of elimination by any one is the rattle of tools, which have been carelessly thrown into the place set apart for their keep in a vehicle, and there allowed to dance about



Taking a Car to Philadelphia by Canal

as they please to the noisy accompaniment of their own clashing. There are any number of ways of carrying the tools, without which no automobile should ever be taken upon the road, but of all the ways the worst, but by no means the most uncommon one, is to throw them indiscriminately into a drawer somewhere or another beneath the seats.

When in the natural course of events it happens that even a small tool is required the procuring of it means a complete dislodgement of the passenger is necessary to get at the drawer, and after that the tool seeker has for the

time being to assume a more or less uncomfortable position.

A very much better method than this drawer idea is to have a leather case in which each tool has its own place, the whole being wrapped up into a roll, then bound with a strap and placed in any part of the car which can be conveniently and readily got at.

Another good idea is to have made a case to fit on to the face of a door, or inside the door of one of the cupboards beneath the seats. This case should consist simply of a piece of light wood, about three-quarters of an inch thick, in which recesses have been cut out right through the wood to fit every size wrench or tool which one ordinarily carries on an automobile. One or more swinging spring clips should be fitted to press upon the tools when they are in position to keep them from falling out or from making a noise, though not strongly enough to prevent the driver, when any tool is required, to find and withdraw it readily. When the tool or tools have been finished with they are just as easily replaced and clipped back in position. If a tool is then seen to be missing it can at once be looked for and restored to its place.

This is certainly a much more satisfactory method than traveling a few miles and then finding that in the process of packing up one or more tools have been left in some unremembered spot. The arrangement suggested has, of course, the same disadvantage of disturbing the passenger, unless the tool casing is made to fit upon the dashboard or in any other convenient place, but even so, it is a noise preventer of whose efficacy there can be no possible doubt.

Having thoroughly squelched the

annoying tool, the next noise maker which should demand your prompt attention is the rattling frame or running gear and its attachments, which are the least excusable of all the noises of which an automobile is guilty. A vehicle running upon pneumatic tires should make no noise from this cause, but this is far from being the case.

Distance rods are a prolific cause of noise. They are generally attached to the frame and to the rear axle by plain studs or bolts of unhardened material passing through holes in the ends of the rods. Whenever the engine is propelling the vehicle the rod is under compression, but whenever the axle or wheel brake is applied the distance rods are under tension, and in this way the bearings of the rods are alternately subjected to stresses which soon tend to develop looseness in the rods. The constant action of the rear springs, as the vehicle passes over rough roads, and the continual presence of grit, makes the wear very rapid, and as no adjustment is provided at these bearings they become very noisy when the vehicle travels over any but perfectly smooth roads.

Brake bands are generally loosely held when not in action, and the brake actuating mechanism contains a number of unadjustable joints which de-

velop looseness and rattle after continued use. Steering gears which develop loose joints not capable of being taken up contribute to the noise, as do the creaking of spring leaves upon one another and the rattle of spring links when worn. A loose mud guard is also unpleasantly evident to the ear. A scrupulous attention to the details of bearing adjustability, and the lubrication and protection of moving parts will in the end give a quiet running gasoline car, and if the signs of the times be read aright it is none too early for the manufacturers to bestir themselves in this regard.

A chain drive should be nearly noiseless when new and in good condition, but as chains are hardly ever encased in present automobile practice, and as they are particularly vulnerable to grit and difficult of lubrication, they are subject to rapid wear. After the rivets have begun to wear and the tooth outline is deformed the chain stretches and no longer fits the sprockets. The block or roller ceases to fall into its place properly, but each block strikes its tooth and later snaps into its space. There are thus two separate noises for each link as it passes each sprocket—when it strikes the tooth and when it later snaps into place, and much noise is the result.



## How One Carbureter Complaint Was Cured

By Plimpton Rodney

**T**RY as I would and do what I might, I could not get that carbureter to spray properly. I had tried theorizing, sought advice and read up all the works on first aid to the ignorant, but to no avail. When it came to spraying as it should, that spray-maker of mine was not in business, and that was all there was to it.

Finally I went at the thing in my own way, fully convinced that if I did not remedy the trouble I certainly could not make it any worse. Upon opening up the recalcitrant carbureter I found the inner walls were completely covered with a soot or tarry film. There was also a deposit of what looked and smelt like dirty kerosene; yet I knew that only the purest gasoline had been used. The gauze screens were duly in position within the induction pipe, so that there was nothing to explain how a flame could have traveled back along the pipe (through the inlet valve) so as to cause such soot to form in the carbureter. The mystery was so puzzling to me at first that, since its solution is now apparent, I have thought the explanation may be of interest to others who have had, or may have at a future time, a similar experience.

It is assumed as a condition to any such occurrence that the inlet valve must first have remained open from some cause, and both the sooty appearance and the kerosene-smelling deposit are the result of imperfect closure of the inlet valve, probably through the in-

cursion of grit or some other foreign substance either in the guide or on the seat of the valve.

If the grit or other obstruction gets between the guide and the valve stem, it tends to tilt the valve head, with the result that when one side of the valve returns to the seating tightly, the other side is either out of contact or only loosely held against the seat. This means a loss of compression and also loss of explosion pressure, since the conditions are different from those pertaining to a weak inlet spring, which only causes a compression loss

through sluggish closing, and occasions a blowing back of part of the charge through the carbureter. This blowing back occurs with the valve under the conditions under consideration, but in a lesser degree; for, whether the dirt is in the stem guide or on the seat, it is evident that it is very small, or the engine would

not run at all, a condition of affairs which would quickly bring things to a focus.

To explain the soot and deposit, however. The engine loses a small quantity of its compression, and consequently the explosion is less violent than normal. The explosion is also weakened by the loss through the imperfect seating of the inlet valve. But the gas that escapes during the explosion stroke has to pass through an exceedingly narrow opening (a sort of slit of infinitesimal dimensions extending around part of the circumference of the



valve, and formed between the valve and the seat, where it does not bear properly).

The gases in the cylinder are at a very high temperature, and have just undergone a chemical change. It is a well-known scientific fact that if gas at one temperature be permitted to pass through a very fine opening, the resultant temperature of the gas after emission is very much lower than its initial temperature. Hence the gases from the cylinder, consisting largely of carbon compounds at a high temperature, on expanding through the very fine opening between the valve and its seat, have their temperature greatly lowered. This drop in temperature is continued through the length of the induction pipe back through which the gas travels, until the final explosion of the gas into the chamber of the carbureter. When this occurs the contact with the ice-cold walls (so rendered by the evaporation going on) cause the internal temperature of the gases returning from the cylinder to be lowered to such an extent that the components capable of taking up a liquid or solid form are deposited upon the cold walls of the carbureter as soot and tar. This tar has the smell of kerosene owing to the gasoline being derived from the kerosene series of hydrocarbons, incomplete combustion would naturally result in a

residue of the heavier portion of the many different compounds which combine to form the mixture known as gasoline.

The remedy, I soon found, was to withdraw the inlet valve and seat, and grind them slightly with rottenstone and oil, or knife powder and oil. The cause of all the trouble is not bad enough for the use of emery to be necessary. After this clean the valve stem and guide, and look carefully to see if it has been knocked in a burr in the guide. If these are apparent, clean off with a fine file (working the file longitudinally so the marks will follow the direction of the valve travel).

There is one other cause from which bad seating producing the phenomenon under consideration might possibly result, and that is from the inlet valve spring to have either turned so that the end does not bear properly, or for it to be badly out of center and binding against the stem. This is not very likely, but it is possible, and in any case, if apparent, should be remedied.

#### **Tossed and Roasted**

"I told him he'd have to choose between me and that big racing car of his. But he was infatuated with the machine."

"You threw him over, of course?"

"The big car saved me the trouble."



SOMETHING DOING

## Handicapping Automobile Races

By F. A. La Roche

**I** BELIEVE that is the object of all racing, to give every competitor a chance to win. To accomplish this, and to equalize the chances of the weak with those of the strong handicapping has from necessity been introduced. That even handicapping has not given to each racer a winning chance is not altogether the fault of the handicapping or the handicappers. You can not correctly handicap unless the statistics furnished you to work upon are accurate beyond question.

I have observed that in the past it has been the custom of some of the manufacturers, as well as of owners, of automobiles whenever they entered their machines in any contest or race to underrate the power of their engines. When not entered in a contest in speaking of the same machines and what they could do, they would exaggerate the rating by calling it nearly twice the actual horse power that the engines were capable of developing.

One of the prominent manufacturers who had several racing cars in commission during the past season, himself told one party that his best machine was 120 H. P.; yet when this car came to be entered in a contest it was entered as only a 80 H. P. car. I even heard the power of this machine announced to the judges at a certain race meet as 100 H. P., although it was entered as a 80 H. P. car in that very same meet. Such a condition of affairs is not true of only one manufacturer, but I regret to say it is the case with most of them. This same idea of misstatement seems to have been followed by some of the importers. In one case an importer entered a machine as 24 H. P. at one meet, and at a second race meet he rated it at 16 H. P. Apparently the object of this

was to secure a handicap, and have a walkover, which afterward proved to be the case. A somewhat similar occurrence took place in a hill climbing contest, where another manufacturer entered a machine in the various events as 7 H. P., whereas the car had four 7 H. P. engines; in other words, it was a four cylinder engine, and each engine of the capacity of a single cylinder engine of 7 H. P.

Such practices do not appeal to me as being sportsmanlike, nor do I think it is fair and just to prospective buyers of automobiles. Naturally, if a prospective buyer intended to purchase a machine of a certain manufacturer—say of 7 H. P.—which they see advertised and entered in a race as such, where he sees it do the work of a 30 H. P. car, he is thereby deceived in the power.

Should he purchase a regular stock machine of that 7 H. P. he can never get the work out of the car that he anticipated, and would therefore be somewhat disappointed. It seems to have been the practice among those entering machines in contests this past season to underrate their horse power in this manner. Sometimes, of course, this was due to lack of knowledge as to what the actual horse power of the machine was, and at other times I am convinced the underrating was intentional. As an example of the intentional I know where a car was entered in a race as a 30 H. P. one, yet it was a well known fact that this car abroad was rated as a 70 H. P. car.

I plead guilty to being an automobile enthusiast, and I have taken part in most of the race meets during the past season. During all this I have noticed with regret the many errors appearing



in the entries, and I sincerely hope that at the race meets in 1904 more care will be taken by the racing board to prevent such "mistakes." A falsified entry should subject the one responsible for it to a fine and disqualification from participating in any race meet for the balance of the season. This should be done in the interest of both the sport and the industry. Furthermore, the entry fee to a race should be quite large—not less than \$50 for each event—and for every vehicle that goes in the race the entry fee should be refunded. Where a car does not start in the race the entry fee should be forfeited.

I think that by adopting this rule there would not be as many entries at each meet as there are now, but I am sure there would be more bona fide ones, and, as a result of this, there would be more evenly matched cars in each race. Many manufacturers enter their cars in every contest; in some cases I know where they have entered five, six and seven horse power cars against fifty, sixty and seventy horse power machines in the free for all contest. It is absurd to suppose that a car which cannot make a mile under two minutes could be entered against a car in the one minute class with any idea of winning. Such entries only prevent the better and higher powered machines from doing their best, since the small powered cars are simply in the way, and are liable to cause an accident, while at the same time they are subject to ridicule from the spectators. It is chiefly on account of these unevenly matched contests that automobile racing is not more popular. As the race meets are now conducted it is simply a case of a walkover for certain high powered cars, and it is for this reason that the cars entering in the various races should be more evenly matched than they have been.

Everyone knows it is a difficult prob-

lem to get the exact horse power of the various machines. The suggestion I would offer in this connection would be that a committee be appointed by the American Automobile Association, composed of officials and engineers, to inspect, examine and test each car before it is allowed on the track. The contestant should furnish to this committee an affidavit from the manufacturer of the machine giving the bore, stroke and maximum speed of the motor, and each cylinder should be so arranged that a pressure gauge can easily be attached in order that the compression of the cylinder can be taken at the time of the inspection by the committee.

The bore and stroke and the speed of the motor does not furnish sufficient evidence of the motor's horse power if the compression is not figured in with it; and it is a well known fact that compression varies from day to day in all motors. Some days the compression is much greater than it is on others, which variation is due to atmospheric conditions. Again, the engine getting too much oil is made to smoke, and the smoke lodges under the seat of the valves, thus reducing the compression. There are many other causes besides these for compression variation. I have noticed that sometimes my compression was from 75 to 80 pounds, and on other days it would not go above 40 pounds. Upon examination I would find that the temperature and atmospheric conditions and the valve conditions were responsible for this.

When the contestant has produced from the manufacturer a certificate giving the bore, stroke and maximum speed of the motor the committee can then adjust the pressure gauge and turn the engine over on the compression at a speed of about 120 r. p. m. From such data the exact horse power of the motor can be ascertained, allowing the

usual deductions for engine friction. Having by this means ascertained the horse power of the different machines entered, they should then be classified according to the above tests. By this method you will have close contests and exciting ones, which will cause interest to be taken not only by the spectators and public but by the contestants themselves.

Most contestants in racing remove the bonnet or hood which covers the mechanism of their vehicles. This is a great mistake, and if you will only stop to think for one moment you can readily see the error of such a practice. In all cars the radiator is in the front of the machine, and generally forms the front part of the bonnet, the object of this being to get the air to circulate through the radiator. When the air is so confined it is forced out from the rear end of the bonnet, which generally is screened or has openings in it, and that is the primary object of having air slots in a bonnet distributed over all its surface, so as to form a draught through the engine and to force the air back to the rear cylinder as well as to the front cylinder. Further than this it aids materially in reducing the air resistance of the vehicle.

I have asked a number of contestants why they removed the bonnets and most of them said the reason they did so was to reduce the resistance and weight, while at the same time permitting their engines to run cooler. This is all wrong, for the simple reason that without the bonnet you have the surface of the radiator in front against the wind, and then again you have the same surface on the dashboard, whereas if covered with a hood from the radiator to the dashboard one surface is saved and thus the air resistance is considerably less with a bonnet than it is without one. The bonnet is not only of

great use in the running of the motor, but adds to a car's finished appearance.

At an early date I will give further information as to what in my opinion is from an engineering standpoint the proper handicapping of machines in races where the motors are of unequal horse power. I simply mention the above at this time, in hopes that advantage may be taken of them, and my suggestions put into effect at the coming race meet to be held over the Ormond-Daytona beach course.

#### **As to New Year's Resolutions**

Once upon a Time there was a man who had very little to Do, and so he put in a couple of Days thinking. The third Day he said: "I notice that no one I know has ever had any New Year's Resolutions that will keep. I believe I could invent some such Resolutions." So he spent a few years operating his Mind and finally devised an indestructible New Year's Resolution. "Now," he said, "I shall get Rich, for I have something everybody will want." And he went into the market place and cried his wares. At first he attracted a large crowd, and every one who passed that Way wanted to look at his Resolutions. But after each person had satisfied himself that the Resolutions would really keep he laid it gently back on the Tray where it was on Exhibition and went on his way. And when the night fell the Inventor had not disposed of one single Resolution.

Moral: You may think people want to reform, but they don't.

#### **Was Not to Blame**

"Hey, there! That automobile of yours is goin' faster'n any eight miles an hour!"

"Well, don't scold the poor thing. It can't read your crazy ordinances, so it isn't to blame for breaking them."

## Horses and Horse Power

By R. E. M.

**I**N spite of the many, many times that the seeming anomaly has been explained, most people are unable to understand why a motor developing five or more horse power is required to do the work that one, or at most two, horses could perform.

The reason is a simple one. In connection with mechanical motive power, the unit horse power is used to denote the definite amount of work done in a given time. This is equal to the lifting of 33,000 pounds one foot high in one

advance was made upon this, and the resultant 33,000 pounds was attained.

In the case of the mechanical horse power the idea of power involves the element of time. Thus 33,000 foot pounds may be done in any period of time, yet it remains foot pounds. Power is the rate at which is done, therefore the horse power involves the performance of 33,000 foot pounds every minute.

Now, as time is an important factor in horse power, it will be seen why the



THE MAN BEHIND

"Eight horse power plus three horse power—and one jackass power. It ought to go!"

minute, the performance of which is known as a foot pound and forms the unit of work. James Watt, when he first introduced steam engines for pumping out coal mines frequently had to replace horses for this class of work, and the unit of work, horse power, suggested itself to him.

Now it was found that the sustained work a horse could perform was about 22,000 foot pounds, but as an advance had to be shown by the mechanical over the animal horse power a 50 per cent.

horse traveling at, say, three miles per hour is able to draw a heavy load, while a light car, traveling at, say, thirteen miles per hour, has this amount of work to do in a lesser time, therefore it requires a greater horse power to accomplish it.

### If He Only Could

Mrs. Noorich—Isn't it grand to ride in our imported touring car?

Mr. Noorich—Yes, but I'd enjoy it more if I could stand on the sidewalk and see myself ride by.



**S**EVERAL daily papers have called attention to the fact—and rightly so, too—that the fastest mile ever driven by an American was that of 48 seconds made by W. K. Vanderbilt, Jr., on the other side, when he made the world's record, which stood until another man over there went it 2 seconds better. This 48 seconds' performance is 7 seconds faster than the American record made by Oldfield, or more than  $\frac{1}{8}$  of a mile further than any American has ever traveled in the same time in an automobile. It is my sincere belief that Mr. Vanderbilt will establish a world's record on the Ormond-Daytona Beach, and America will take its place as the holder of the mile record over all other countries, though it is a pity that should such a record be made that it will not be made on an American built machine.

Speaking of the Florida races it looks as if we are to see there the first great race with society men driving. With W. K. Vanderbilt, Jr., Harry Payne Whitney, Harry S. Harkness, Harlan W. Whipple and Bernard M.

Shanley, Jr., we should have a race worth going miles to see.

Owing to the cost and labor required to accurately handle the timing on the Florida coast it is extremely doubtful if the timing apparatus will be used on the Ormond-Daytona course until the

following year, after January the 29th, 1904, unless a storm or some such occurrence should cause a postponement of the meet, of which, however, there is not much likelihood of. The Florida races are clocked by the regular timing officials of the A. A. A., who will not remain in Florida after January 30, so that any later records that might be made would not be official. The result is that all records must be made during the week of the races, since it is quite possible the

copper wires, which have cost so much money, will be taken down and stored away immediately after the meet is over.

It would seem that the passenger agents of the three railroads running to Florida from New York have not as yet woken up to the importance of the pa-

Another new leaf? Yes, again 'tis the time

When we pause 'mid the pleasures of feasting and rhyme

And listen, while conscience reminds us anew

Of the things that we ought and we oughtn't to do

The many small vices which cause such expense

Must be banished for aye with a virtue intense

And the greater ones, too, if there happens to be

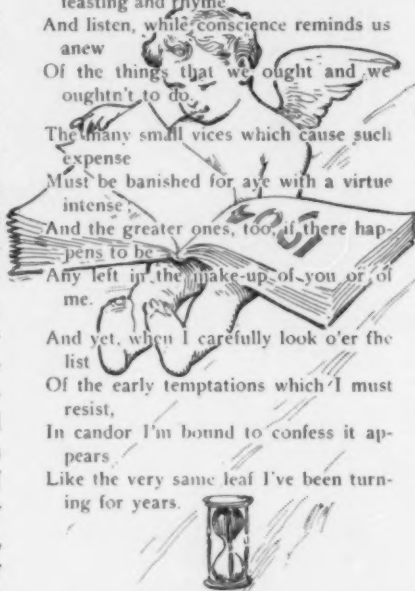
Any left in the make-up of you or of me

And yet, when I carefully look o'er the list

Of the early temptations which I must resist,

In candor I'm bound to confess it appears

Like the very same leaf I've been turning for years.



tronage of the automobilists who are bound for Florida. As everyone knows, Florida is a State somewhat covered with water, so if you attempt to go anywhere outside of a city, with only a few exceptions, you are liable to get into a bog, and have all sorts of trouble to get out again. The automobile more than anything else will encourage the State of Florida to build roads which can be used, not alone by automobiles, but by the horse and the cyclist as well. Florida will never be what it should be until it has a perfect system of good roads, and when it has such roads it will become one of the wealthiest States in the Union. Railroads everywhere seem to labor under the delusion that all automobilists are nothing short of millionaires, who hand their money out just as freely as an alleged good thing in stocks is handed out to the unwary investor. No doubt there can be found a suitable winter racing course nearer than Florida, and not very far from New York. This the railroads running to Florida may find out when it is too late to check the travel in another direction.

The Seaboard Air Line is an exception to all this near-sightedness, and its management seems to be very much more progressive when it comes to handling a thing of this kind on a broad gauge business principle. J. P. Beckwith, the traffic manager of the Florida East Coast Railroad, can also be put in the enlightened class. As an example of this, both the above roads presented handsome trophies for the race meet last winter, and will do so again this winter. No great crowd will ever

go to Florida unless some inducement is offered in the way of a reduced rate of transportation there since, notwithstanding the fact that the course is a magnificent one, people up here can see automobile tournaments very much nearer home at considerable less expense. Railroads seem to forget that for a man to go from New York to the Florida races by the rail and take his car with him, calls for an outlay of not less than \$500, and the number of men who can or who will do this are not more than a thousand or so.

Luckily the Clyde Steamship Company has come to the rescue in a freight way, and the shipping of an automobile by one of the company's steamers from New York or Boston at an expense of \$1.77½ per 100 pounds, is extremely reasonable, when you consider that the machine is for that price landed at either Ormond or Daytona without any bother to the owner, as the Clyde Line has direct connection with the Florida East Coast Railroad.

I personally used every endeavor to make the Southern Passenger Association, which met at Augusta, Ga., December 16, understand that the future of the Florida tournament depended largely on their action in the way of rates. Notwithstanding this, and every possible argument the Florida East Coast Automobile Association could bring to bear in the same direction, the Passenger Agents decided that the full rate must rule. Fortunately, however, the Seaboard Air Line and the B. & O. will run an excursion from New York





January the 26th, and while this was not originally intended as an automobile tournament excursion, it comes in most opportunely, since on it the automobile people can travel to Florida at the half rate. We who are interested in making the meet a success are now trying to get the Seaboard Air Line and the B. & O. to start this excursion one day earlier, i. e., Monday, January the 25th, which, if we can succeed, will land people at Ormond and Daytona the evening before the tournament starts, which is just what is wanted.

The Clyde Line will run excursions from New York and Boston under the direction of Thomas Cook & Son January 21 and 23. These excursions should be well patronized, since the Clyde Line deserves the thanks and appreciation of the automobile fraternity. I feel sure that as Thos. Cook and Son will handle the excursions so as to give passengers their choice of taking the entire sea trip to Jacksonville, or the half sea trip to Charleston and a train from there to Florida.

It will be well for those that are going to reserve both their steamer and their hotel rooms well in advance, so that a choice of accommodations may be had in either Ormond or Daytona. At the former place the popular entertainers, Anderson & Price, hold forth with the beautiful Hotel Ormond, one of the Florida East Coast hotel system houses owned by H. M. Flagler. The Inn is another place which will undoubtedly attract a good many, since it is right on the beach, only about half a mile from the Hotel Ormond. The Inn rates are more reasonable than those of the Ormond, though the latter's are exceedingly fair when the high class of the accommodation offered is considered. Anderson & Price welcomed me when I went to Florida last year to spy out the land for a tournament, and they did

more than any other two men by footing the bills for the tournament and by making the visitors feel at home to make the affair a success.

Daytona has some very fine hotels, and very reasonable accommodations can be had there. John B. Parkinson, secretary of the Florida East Coast Automobile Association, will be glad to send information as to accommodations and rates to any one who may apply to him for them.

As there is always a rush of tourists about the time of the tournament, I would advise engaging rooms ahead.

Considerable curiosity and interest was evoked when it became known that



Panhard & Levasor would open a direct United States agency in New York, and conduct it themselves. Of course for quite some time it has been suspected by

those who are in the know that the French automobile was being utilized in this country for the purpose of bleeding all, except the sellers, who had anything to do with it—and not a few did. It was even intimated that a lot of second-hand machines were being bought in France, then doctored and sold here as new. The fact that some of these doctored conveyances were models of one or more year's standing made no difference to their innocent purchasers here, who did not go over to Paris to see what was what in the motor vehicle line. Repair charges were in keeping with the original cost of the "antiques" to their purchasers, and altogether a more or less shady lot of people dealt in foreign automobiles for American consumption.

Some time ago the New York Sun printed an editorial which stated that the French Government had collected factory tax on only \$80,000 worth of French machines intended for shipment to America. That was I believe for the fiscal year 1902-1903, twelve months in all. The fact that over half a million dollars' worth at least of French machines had been sold in America started me thinking, and I communicated my "thinks" to the editor, who said, "Look it up."

I found another newspaper man who knows more about these things than most people, had also been looking this apparent discrepancy up, with such excellent results that the number of advertisements of French machines suddenly increased in his paper in a most amazing fashion. Of course I would not for the world even intimate this increase was in the nature of a bribe offered him for the suppression of unpleasant facts, but even so, the presence of that fine new Panhard & Levasor building in Thirteenth street speaks rather eloquently of things some one must have discovered.

Last summer a French gentleman called at the AUTOMOBILE MAGAZINE office and made minute inquiries about the trade in this country, though he did not supply much information as to himself or his mission in this country. It seems now that this visitor went nosing about for three months, and got such unsatisfactory information about how Panhard interests were being handled in this country that he cabled headquarters in Paris it was absolutely necessary that an United States branch be opened and managed by the firm itself. The other day A. Massenot, general Panhard & Levassor manager for the United States, told me that he would rather not make specific statements as to who may or may not have

been guilty; but he did say that the mix-up was so general that he had to exile himself from his beloved France, and come over here and straighten things out.

There has been a lot of crooked work going on with French machines, and that there has been is now generally recognized in Paris. The dear American public have as usual been made to pay through the nose when brought in contact with certain firms who declare themselves responsible importers. It is, therefore, satisfactory to know that in future, at least, those who buy a Panhard automobile will be sure of getting decent treatment, since the West Thirteenth street establishment will carry a full line of Panhard parts, and will have factory mechanics on hand to attend to any repairs necessary. Other foreign firms are following the example of the Panhard people, and are opening up their own branches in New York. It would be the part of wisdom, therefore, if you suspect that you are being imposed upon, for you to go to headquarters and find out what's what, and who's who.

France has certainly "rubbed it in" to us in bogus works of art, and I fancy the automobile has been worked pretty nearly to the limit along the same line, since we are gradually getting posted on things automobilic. Those of our countrymen who have in the past collaborated with Johnny Crapaud in defrauding American buyers should not be allowed a place in anything but a black look.

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What is the matter with Barney Oldfield, anyhow? I see now that he has solemnly promised never, never again to race in Southern California because he was not pleased with his treatment there. Judging from a picture shown me recently I am sure Barney was in a

bed of roses in the beautiful city of Los Angeles. That he made records there, even if he did not make as much money for doing so as he thought he ought to, should have satisfied him, and his employers should see to it that he is not allowed to play the part of an ingrate, because you know fame is fleeting, and free advertising is ever more or less hazardous and temporary.

Alfred P. Reeves, of this city, offended Barney fearfully on the occasion of Oldfield's last appearance in New York, and Barney has promised never to set foot or wheel on the Empire track again, as long as Mr. Reeves is connected with it. As a matter of fact, Mr. Reeves is a good friend of Oldfield's, and appreciates to the fullest extent his ability and drawing qualities as a driver; but Mr. Reeves was responsible to the stockholders of the Empire track for some sort of returns on their investment there, and could not, therefore give all the receipts to Barney.

So it seems that the Great and Only is not going to Europe after all, which is a most unkind cut on the part of the Winton people after allowing their driver to talk Gordon Bennett from New York to California, and what he would do to them over there, and now his concern refuses to allow Barney to toe the scratch for the second round in what I believe would be a most one-sided fight, but which would do Barney a pile of good just the same.

I believe that the little Scotchman Winton has more sense and perception than he is credited with. He is cruel to Barney, because he would be kind to him, and at the same time kind to his firm, in not sending the great circular track driver to meet the experts who know a little about what Gordon Bennett races really are, and which Oldfield would learn even at the cost of a good drubbing.

The Automobile Club of America has as usual followed the lead of the French



Club in the Gordon Bennett annual cup race matter. From what is known now, the United States is not going to have much of a team in the 1904 contest, judging from the lack of in-

terest displayed by our manufacturers. It would be better by far that this country be not represented at all, if America can not send to Germany a team which will not make us the laughing stock of the nations of the earth. We have to go up against the finest drivers that the Old World can produce, who, mind you, are superfine when compared to the articles we sent over this year. It is quite true we are young in the game, while France, England and Germany have been running these races for five or more years and are quite familiar with and hardened to them, but all this was not taken into consideration when the press of the world heralded the discomfiture of the Yankees on the soil of old Ireland, and that defeat cost us a lot of money, since it practically stopped our exports and gave renewed life to the importation of foreign machines.

Some months ago I called attention to the fact that the rules of the Gordon Bennett cup race should be changed so that each country could only be represented by drivers who were citizens of the country, whose machine they piloted in the race. In other words, Germany should have had German drivers in the race they won and not two Belgians and an American.

I am glad to see that the French manufacturers and the French people generally have come out flat-footed in regard to the elimination trials, by means of which

candidates for the race are selected. It had been proposed that a certain big firm should not be required to take part in the preliminary competition for the choice of candidates. We tried giving one concern in this country the right to be represented without winning it this year, and all we got for it was a "Russian gasolene" excuse. It is now a sure thing that all those who will toe the mark in France will be tried out for the big battle in a preliminary contest wherein the doctrine of Divine right will have no place.

The elimination tests in this country should be most thorough and should partake of the nature of a regular Gordon Bennett race with controls and other rules and regulations which are such important parts of the great contest itself. America's representatives should be trained for months before they are sent across the water and they should be hardened and made ready for the great strain that such a race demands of every competitor in it. A Gordon Bennett contest is no child's play, still I hope to see the cup brought to America within the next three years. It will be a good idea for the American competitors (if we decide to send any) to reach Germany far enough in advance of the race to permit of them being on the roads for not less than three or four weeks, especially those roads over which the race will be run. All of this and more should be done. What will be done the Lord alone knows, and he hasn't confided any of it to me.

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Why should manufacturers allow their employees or expect their employees, who drive racing machines, to squeeze the last penny out of a tournament promoter? The initial purpose of an automobile manufacturer in building and exhibiting racing machines, winning races and making records, should be to advertise that machine, and by the advertising thus gained sell it to the public, or, at

least, to sell some similar product the manufacturer makes. Having been given an opportunity to advertise the machine at little expense and the public having paid to see that machine, is it not a little too much to find the employee who is well paid to drive it holding up tournament promoters for every cent in sight?

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This leads to the question of recent decisions by the racing authorities of the American Automobile Association. Two of them I believe to be at fault, and as they are important ones, I want to protest against them. Chairman Pardanton has decided that prizes won in a race must go to the manufacturer of a machine, if that manufacturer is represented by a salaried employee. I do not believe that is good racing decision. The question of dividing the spoils should be left entirely to the manufacturer and his employee. It is for these two, who are really the only ones directly interested, to decide as to who the prizes should go to. The racing board has nothing to do with such matters, nor has any one else. You cannot consistently compare an automobile driver to a jockey. I know of one case where Barney Oldfield, for example, took \$500 worth of prizes in preference to the cash, and the prizes were taken at the suggestion of a representative of Oldfield's employers, which goes to show that there is a lot of amateur spirit left in even Oldfield yet.

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A notorious press working automobile concern, with a "plant" not many miles from New York, sent out a notice recently that it had within a short time shipped automobiles to China, Japan, Australia and other distant points. It is a curious fact, but nevertheless a true one, that the machines of this concern are not seen much in this country, so it is possibly just as well that the makers are shipping them to distant points, though

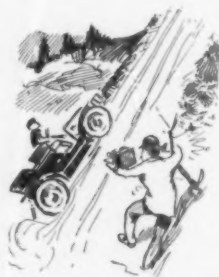
they will bring little credit to the good repute of either American manufacturers or methods of doing business, no matter where they are.

Now comes the time of the year when we will be severely inflicted with the local automobile show. Of course the affliction will all be done in a spirit of philanthropy, but the manufacturer will be expected to provide the cost thereof just the same. The local show scheme was so profitable in Buffalo last year that one of the promoters of the affair went back on his fellow promoter and generously suggested that the partner's share of the show's profit be given to the automobile club. This partner, who, by the way started the enterprise, is a well-known local dealer, and he naturally protested against his former partner's proposition. The upshot of the thing was that the local dealers in Buffalo organized, and now the local dealers' organization will run the show in conjunction with the club. The wicked partner will now have an opportunity to think about one of Aesop's fables which treats of a certain dog that had a bone in his mouth while he was crossing a stream, and saw the reflection of a larger bone in the water, whereupon he made a grab for the bone in the water and lost the real one he had in his mouth.

This giving of local shows and the charging of the public an admission fee to see something they are expected to buy is very much on the order of the food show, which I attended the other night in Cleveland. At the food show, however, for your admission fee you do at least get samples of different kinds of baby food and other things, which the industrious housewife lugs off with her, thereby regaining in part the cost of her admission. But you don't lug off more than six automobiles for the fifty cents you pay for the privilege of looking at

them in an automobile show. I know the Automobile Manufacturers' Association could, if it tried, put a stop to most of this local show business, as it is the members of the A. M. A. who in the end have to pay the bills for all shows, local or national. It would be of much more benefit and much more in keeping with the purposes of the A. M. A. if it declared itself against the local show evil, using some of the energy in that direction they are now frittering away in a futile attempt to conduct a publisher's business. That is, the A. M. A. should not endeavor to be its brother's keeper, when it comes to spending of his money for publicity. If any manufacturer can not make up his mind where he wants to spend his money without aid from Forty-second street, then most decidedly he is not fit to conduct any business, no matter whether it is making automobiles or merely mistakes.

L. J. Phelps I have known for several years. I first met him over in New



Jersey, where he and Mr. Dingle, another clever mechanical engineer, were engaged in pneumatic tire making, now he has an automobile bearing his name which has proven itself something of

a wonder. Those who attended the Eagle Rock, N. J., hill climb on Thanksgiving day, will remember the rush up the hill made by Mr. Phelps with this 15-H. P. car of his. Mr. Phelps had not heard of the Eagle Rock Annual Climb until two days before it took place, when he saw something about it in an automobile paper, so he thought it would be impossible to get over from Boston in time. Rushing into a tele-



graph office he wired his entry to the Automobile Club of New Jersey. He then telephoned to his assistant at 2:10, and got the machine from the garage in Boston, where a demonstrating car was kept. Mr. Phelps and his man were soon flying toward Fall River in their car, and on reaching the dock of the Fall River Line were informed that the boat would sail in two hours and forty minutes, but that the rules of the company required that an automobile be on the ground three hours before sailing, or it could not be carried. In telling the *AUTOMOBILE MAGAZINE* man the story, Mr. Phelps said:

"Possibly I wasn't disgusted and mad, to say nothing of being half frozen, for we had no time to clothe properly in Boston, and had on only a light rain coat and thin gloves. After interviewing the general manager with diplomacy enough to secure a canal treaty across the continent of Europe, he yielded to the extent of allowing us to put our car on the freight boat, which he said would leave some time during the night and get to New York sometime. It did. It got there about noon the next day. Forgetting about the New Jersey law which required numbers on our machine we soon got into trouble in the home of the Trust state. We soon fixed up a number, and you know the balance of the story of how we climbed the hill."

Mr. Phelps' motor vehicle experience dates back to 1881, when he built his first motor car. He used a two H. P. engine then, and a sectional boiler heated by kerosene, sprayed under the boiler with a jet of steam. When asked about the success of this experiment Mr. Phelps only smiled. In 1897 he built another car, using a gasoline engine. This was of a type commonly known as the fore-carriage type, mounted on three wheels, and used successfully for some

time. In February, 1903, the Phelps Motor Vehicle Company was organized to manufacture the gasoline cars designed by Mr. Phelps, and spoken of above.

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There is something curious about the way that the people who regulate the spelling of words make decisions. According to common sense the words kerosene and gasoline ought to have the last syllable spelled with i instead of e, or with two e's instead of one. I wonder if the pronunciation will change to agree with the spelling, or if the spelling will be adjusted to suit the pronunciation. I notice that our British friends spell the words as they are pronounced.

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Most people in the trade know "Pat" Hussey. He was christened Patrick Lincoln, but no one would think of calling him that. Mr. Hussey comes of good old Irish fighting stock. His father having been notified by the British Government to get out of Ireland, because he was interesting himself entirely too much in getting up a small army to force John Bull to emigrate. He managed to get to Canada and then fought during the invasion of our cousin's territory across the line. The patriot's son stands some six feet two, and has been a noted athlete from the time he could wear spiked shoes or don boxing gloves. He is as straight as a pike staff, with great broad shoulders, with a fine, open, smiling face, graced by a pair of mustaches that have been the envy of many. When the owner of these hirsute adornments gets mad the mustaches seem to point upwards like Emperor William's, and when this happens look out for trouble!

I have known him for many years, and about a year ago, while I was taking dinner with him in a Cleveland restaurant, and together we were discussing the trust beefsteak, two young men who

had been looking upon too much wine of assorted colors began fighting. In the course of their mad plunges they bumped into our table. Mr. Hussey got up quickly, and, grabbing them in each hand, he held them apart as if they were a pair of dolls and while he threatened to bump their heads I was preparing to get under the table. After a lecture he told them to go home, which they did, after apologizing to the proprietor of the restaurant. Whereupon Mr. Hussey and I finished our dinner in peace.

While I was being shown through his very complete drop-forge plant in Cleveland, the other day, Mr. Hussey drew my attention to some of his employees who have been more or less famous in an athletic way. Pointing to one man he said: "That is Jack King, the ex-lightweight boxing champion of England. That thick-set man over there is Tom Acton, the great wrestler." These ex-champions are now hammering red-hot iron and steel instead of hammering the faces of their fellow men, and judging from the good work that Hussey is turning out, the ex-champions are as successful in the arts of peace as they were in those of war.

Mr. Hussey is making a funnel which, like a certain famous pill, should be worth its weight in gold, because really the funnel is a necessity for every automobilist. The main idea is a strainer and a separator, which strains the gasoline before it goes into the tank, removing from it every foreign substance, even including water, which has given so much trouble in the past. To prove that it will do this, Mr. Hussey placed some water in the funnel, and then filled the remaining space with gasoline; the water remained in the funnel, and on being subjected to fire test would not burn while the gasoline readily ignited. Mr. Hussey is also turning

out various types of steering wheels, which, like his funnel, lubricators, etc., have become great favorites.

There is an awful row on between the *New York Times* on the one hand and



my friend Jim Holland, who edits *Automobile Topics*, or "toepicks," as Arthur Banker calls it, on the other. Holland wields a caustic pen, and it seemed he got under the cuticle of the *Times* young men, who are verdant enough to think they have been writing the automobile off the roads and out of the world. But it took J. P. H. just about two pages to thoroughly chastise the staff of this particular New York daily, and he did it to the Queen's taste. The reporter that wrote the rot about covering half of New York on foot in thirty minutes while timing one hundred automobiles, each of which exceeded the speed limit, should now be allowed to retire, and a city editor who passed such copy should be written down as the champion dunce of Park Row. The *Times* is still at it, but I think it will not be so cock sure since Holland put on the four-ounce gloves with them; in fact, I don't know but what it was bare knuckles he used to score the knock-out.

Speaking of Holland, he was telling a party of us a rather funny story last summer, which will bear repeating, and which goes to prove that an interesting story is the first requisite with him. It seems that Mr. Holland was a special writer on the *London Mail*, which is a sort of "yellow" English paper, but like all the yellows has a large circulation, and the editor of this particular "yellow"

languished for some good startling stories, so he gave Holland carte blanche to travel anywhere and get them. In telling this experience James P. said: "It was a hot day when I got this broad gauge assignment, and I thought I would run down to a little seaport town in Kent. While I sat on the veranda of the hotel a man came up, and we began to talk about the town.

Now, that man must have had it in for that town, for he declared that three-quarters of the people were luny, and that no committee on sanity would give the other third a clean bill of health. I was interested at once, and asked him what the reason for all this was, and he went on to give me a long essay about the people of the town having intermarried for one hundred years, and as no one married outside of the town, the very natural result was a race of physical and mental wrecks. I immediately got out my pencil and wrote two columns, giving names, dates and photographs of the people, and the *Mail* came away with a fine story. The very next day a delegation waited on the editor to protest against the slandering of their town. Of course we made the necessary explanation, though we proved beyond a doubt that the facts in the main were as we had stated them, and although we had made the percentage of imbeciles a trifle high. But retribution was swift, and I was a marked man in that town. A few months later the editor said that there were some expert divers in that town, who were busy examining into a celebrated ship collision case, and he told me to go down and get the particulars as to who was to blame for the wreck.

I knew the captain on one of the steamers which had been in the smashup, and the populace also knew me, so just as I was embarking to go out to one of the wrecks in a launch they promptly threatened bodily harm to me. They

followed us in boats, and loudly told us how they thirsted for my blood, and were positively delighted when the captain suggested that I get into one of the diving suits and go down a few fathoms and examine the wreck for myself. The satisfaction of the decided beat in news such an examination would give me was strong in me, so I climbed into the suit, which felt about as heavy on my head as one of the old gasolene machines would. The natives who had it in for me, cheered when I disappeared under the water, when I was out of sight, but not, in consequence, out of mind, with long knives they made lunges at the air tubes, through which came all the air I breathed, but the sailors kept them far enough away for them not to succeed in this.

"Something, however, must have gone wrong, for I soon discovered that my head was swelling to about the size of that copper helmet, or at least it felt like it, and it was the first time in my life that I had ever felt that way. I tugged frantically at the signal rope, and it seemed to me fully a month before they hauled me to the surface, and after all I had not seen anything of the break in the hull. Loud jeers greeted my appearance, accompanied by such comforting remarks from the natives as 'They ought to have drowned you,' etc., all of which showed that if natives had anything to do with it, I would be down there yet.

"While going down in that diving suit gave me a great story, I do not want to repeat the experiment, as I am convinced that I never was built to be a Holland sub-marine."

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Another one of those eight-cylinder racing machines has been discovered. I learned last week that a machine of this description has been built in New England, and will be known as the "Bluff 'em." It is said that up to now no one

has been found who has had courage enough to let this octuplet do its best. If the Bluff 'em can't find a driver with eight-cylinder nerve, I would refer them to Barney Oldfield, as a possibility. It can't be said of the invincible Barney that he was ever afraid to push the speed lever of any machine he ever sat in as far over as it would go, come what might from the pushing.

It is about time that a census was taken of these multiple cylinder machines, and the exact power thereof should be known. The Oldfield machine has been designated as everything from 60 to 120 H. P. Barney calls it a 60, but Winton in Ireland told me it was 120, and the people Barney has defeated call it about 250.

Having long ago gone on record as an anti-show man, I regret to see that



New York is to be afflicted with what has been slyly termed a "Madison Square Garden overflow or annex show." It will be remembered that a department store started in the show business last year, but I do not believe that they did anything which profited those who "showed." But the desire to make a little capital and a few dollars out of the show business was once again too strong the moment it was learned that space would be at a premium in Madison Square Garden, the only proper show place. So a man with several failures to his record came forward and announced a show in a department store building, and to me it seemed as though he endeavored to make the press and the public believe that the affair was an off-shoot from Madison Square Garden, which, however, it cer-

tainly is not, since I have Mr. Sanger's word for it that he confines all his shows to the Madison Square Garden, and rightly so.

What surprises me most, though, is to see certain trade papers boosting this department store game, even though one of them was rewarded with a small advertisement for its betrayal of the legitimate exhibition. If that is not letting loose the Philistines on the automobile trade, and encouraging a lot of fakirs, I would like to know what it is. THE AUTOMOBILE MAGAZINE will endorse no such scheme, nor will it accept any advertising for any such shows. The alleged "Annex Show" in New York will be a fizzle beyond a doubt, as were other alleged shows of last year. One show is enough for New York, and if it has to come to it the Manufacturers' Association should limit exhibitors as to space, and give everybody a chance to enter, since that is the only way to kill fake shows. The New York Show promises to be like all Sanger functions, a magnificent success, and Chicago will undoubtedly be equally successful, as the West and Middle States will crowd to Chicago February 6 to 13. While New York's dates are January 16 to 23.

During the New York Show the very pleasant social function known as "The Annual Hyatt Roller Bearing Banquet and Entertainment" will be given. It will be conducted this year in the usual efficient Hyatt style, and will roll along as easily as did the automobiles with Hyatt rollers on in the endurance run. The banquet is, of course, a complimentary one to the friends of the Hyatt roller bearing, and will be held at the magnificent new hotel Bretton Hall, Eighty-fifth street and Broadway, which is managed by the Anderson & Price Company, who are also managers of the

Hotel Ormond and The Inn at Ormond, Fla., as well as the exclusive Mt. Washington Hotel and the Mt. Pleasant at Bretton Woods in New Hampshire.

The Hyatt guests will be taken from the Garden Wednesday evening, January 20, in electric buses to Bretton Hall, where after the feasting and speech-making is over a vaudeville entertainment will be given. The well-known orator, Col. Albert A. Pope, has promised me to make the principal speech of the evening. The Colonel's subject will be "The Building up of a Great Business," about which few know as much as he.

Speaking of Bretton Hall I am told that a large number of the trade will stop there during the Madison Square Garden Show, and those who like an elegant, quiet, homelike place to stop will find in Bretton Hall all that can be desired in these essentials to health and happiness.

The nomination of Harlan Wellington Whipple for the presidency of the American Automobile Association should receive the cordial endorsement and support of all automobilists who believe in the man who does something. In THE AUTOMOBILE MAGAZINE from time to time I have drawn attention to the universal good qualities of the man from East Orange and Wall street, and as the days go by he is living up to the high standard declared for him by his many friends. It is a singular thing that the David and Jonathan combination of Winthrop E. Scarritt and Harlan W. Whipple is receiving high favor at the hands of the automobile fraternity. It is well that this is so, since each of these men can point to many good things accomplished for the advancement of automobilism. Mr. Scarritt made one mistake, but he is living that down, and his recent eleva-

tion to the presidency of one of the four great automobile clubs of the world is a deserved tribute to an accomplished man. It is my hope that as a delegate from the Florida East Coast Automobile Association to the American Automobile Association, that I will be in Chicago ready to vote for Harlan W. Whipple, and will be prepared to vote all night and all week if necessary, should any opposition show itself, which, of course, it won't.

Colonel Charles H. Sprague, of Norwalk, Ohio, who was an intimate friend of the late President McKinley, and who is an author and song writer of note, proposes to make life easier for the automobilists. To this end he will introduce several good things in the way of tops and canopies intended to protect the automobilist from the rigors of the weather. Colonel Sprague and Superintendent Dillingham journeyed with me recently to Detroit, and together we made a thorough inspection of the various types of automobiles, securing therefrom sufficient data to provide a large factory force with information so that they can produce the necessary automobile covering. Colonel Sprague's company is the largest and most important manufacturers of head gear in the world, and the concern will surely become important factors in the automobile business, where the unique personality of the genial and talented Colonel will quickly make itself felt among the automobile fraternity.

The technical world has known for some time that the little town of Clyde, in the State of Ohio, was the residence of a man who has made an exhaustive study of the gas engine. This man, Professor E. W. Roberts, M.E., is a graduate of Cornell Engineering School, where he studied and graduated under



the watchful care of the eminent and late Professor Thurston. Speaking of Professor Thurston, reminds me I met him several years ago at Ithaca in company with Mr. Moss, the well-known chain maker of Truemanburg. I went to Cornell to learn from Prof. Thurston what he thought about the bevel gear drive, because at that time there was a great deal of discussion as to whether the bevel gear would supplant the chain drive.

Professor Thurston then certainly believed in the efficiency of the chain and stated so in our interview, which I printed in the technical papers. I do not know whether Professor Thurston's views ever changed or not, but at that time he pointed out that the chain had been substituted for the bevel gear in factory and harvesting machinery where the bevel gear had been used previously and where it had not proven satisfactory. I had often intended to interview the Professor and learn his opinion of friction drive, but I never seemed to find the time, and now, alas, it is too late.

But to return to Professor Roberts, who is an ardent admirer of the late Professor Thurston, and who credits that great man with the success he, Roberts, has made in an engineering way. Mr. Roberts will be remembered as the editor of the *Gas Engine*, a monthly devoted to technical criticism of its name-sake, and which stands first in the affections of all constructors of gas engines. Later Professor Roberts started out for himself, and is to-day consulting engineer to several large concerns. To act in this capacity he has now established a laboratory at Clyde, and it was there among his testing instruments and drafting paraphernalia that I saw him recently. He has fitted up a machine shop and thorough test-making department, where many new inventions and

new ideas in gas engines are given their practical as well as theoretical trying out.

Motors that have ailments are sent to Dr. Roberts, and he feels their pulse and tells their owners what ails them. Engines whose makers can not make them run returned from the Roberts' sanitarium with their internal mechanism in first-class working order. In years to come, Professor Roberts will be likely to be known as "good, old Dr. Roberts." Mr. Roberts is the author of many standard text books on the gas engine and at least three of which have had an unusually wide sale. Besides all this he finds time some way to be a voluminous contributor of instructive copy in various technical journals. THE AUTOMOBILE MAGAZINE has run some very interesting stories of an automobile nature from his pen.

It seems to me that the opponents of Isaac B. Potter and the American Motor League are not doing the right thing in maintaining a nasty personal fight against the energetic president of the A. M. L.

It is to Potter that the present activity displayed by the American Automobile Association is due, as the A. A. A. was deadlier than a door nail until Mr. Potter began to show the way an organization should be handled. In fact, I think the two organizations in the field act as a working incentive, one for the other, and if Mr. Potter is doing a good work—and there is no doubt in my mind that he is—he should be accorded all the courtesy and fairness which any man in so thankless a position is entitled to.

The American Automobile Associa-



tion cannot be built up merely through trying to pull down another structure, but if those in A. A. A. control will confine their best efforts to building that association up, and waste no energy in trying to pull another one down, they will have the respect if not the active assistance of many who now view the A. A. A.'s present policy as a childish and peevish display of littleness.

In this connection some of those who have come forward with statements which are more or less libelous, no doubt regret by this time that they invited the service of papers in a libel suit. But it is regrettable that this had to be done, and the sooner the entire nonsense is stopped the better it will be for automobiling and the cause of the automobile everywhere.

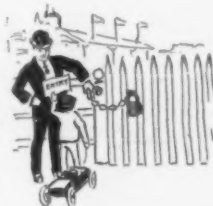
As an example of the thorough way Mr. Potter does his work I would call especial attention to an advertisement he has elsewhere in this issue. Thanks to Mr. Potter, all the members of the American Motor League will be enabled to visit New York during the time of the Automobile Show at a total cost of only one and a third regular fares. This is the kind of work which effectually answers the often repeated question of "What do I get for membership?"

Three years ago the Beckers, J. H. and Burton A., out in Clyde, Ohio, decided to engage in the automobile manufacturing business, and they attacked the proposition in the same thorough and conservative way as they did the bicycle business, with the very natural result that their automobiles are finding the same favor their bicycle did. I have had a peep at the 1904 Elmore proposition, and it certainly looks a winner all over. I am estopped from furnishing details of the design or the price, but I can tell you this, that it will make considerable

talk in New York and elsewhere when the vehicle and the price is known.

Automobile racing is in its infancy, and its management will not be made perfect for years. It has been said that the best managed meets of the year were at the Empire City Track, although it was my misfortune never to have the pleasure of seeing any of them. The duties of racing officials is not sufficiently clear at this time, and some of the work done by them is not what it should be by a long chalk. But as I have said, we will sooner or later get down to running automobile meets just as smoothly and efficiently as the old bicycle ones were run.

The barring of Barney Oldfield from the prize at the Empire Track after his entry had been received by the track management was a faulty ruling, and it is extremely doubtful if it would stand were it to be re-



viewed by competent authority. The Oldfield entry was received by the management after the entries had closed in the regular way, and it therefore became a matter between the track management and the American Automobile Association, and not one between the latter body and Oldfield. The duties of a referee are clearly defined in athletic circles, and the advice of the referee and his decision can only be invoked in case of dispute between competitors, or when the judges are unable to agree. It was, therefore, clearly a mistake to deprive Barney Oldfield of his prize at the Empire Track after his entry had been accepted by the management. The prize is unquestionably Oldfield's, if he should decide to go after it in a legal manner.

There is no doubt but what there is racing in the air, and that the next ninety days will bring forth many defies from the many owners of fast racing machines, each anxious for track honors. The New York Show will undoubtedly be the place where we shall hear the first lot of 1904's "dares," but it is to be hoped that if there is any match making at the New York Show this year that it will be confined to the principals themselves, and not to their "representatives," whose acts may be subsequently disavowed by the principals, if it suits them to do so. Last year the New York dailies in all good faith lent themselves to a press agency match-making scheme, but the sad experience they gained will make them more shy this year, and they will insist on seeing the goods before they do anything.

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There will be a real dark horse at the Ormond-Daytona tournament this year, and you can make a note of it that this same "dark horse" will cause possibly the greatest surprise of the tournament, and I don't mind telling you there are going to be several of them. He walked into THE AUTOMOBILE MAGAZINE office one afternoon, and asked for an entry blank. He also wanted to know the best way to send his racing car down there. After receiving both blank and the information I casually asked him what class of events he desired to enter, and he promptly replied that he would enter all classes where he was eligible, and he especially wanted to enter those which would permit of his competing against Mr. Vanderbilt. I remarked that I thought his stock of ambition was large, even if he did not have a fast car, to which he slowly replied: "Well, I think I have a car that will go a mile inside of 50 seconds. She has 60 H. P., and was built for one of the greatest

drivers in the world, but she fell to my lot, so I am going to Florida to see just how fast she will go."

Subsequent conversation showed the car to be one of a most famous make, and to have cost its present owner something like \$12,000. The driver is a young man, and a native of New York State, and he certainly seems to know what he is talking about, so I am holding him in reserve for a public surprise as my pet "dark horse."

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The *New York Herald*, among other names, recently suggested mine for a position on the A. A. A. racing board. While I thank the great Gordon Bennett production for its kind remembrance of me, I must still ask that it leave me out of the running, because I do not believe that a newspaper man can conscientiously be an office holder if he expects to do justice in what he writes, to all concerned. At the same time, I do not believe that people prominently connected with the trade are eligible for such positions, which positions should be sought for, or accepted, if offered, by people who are not connected with the trade, and who have more leisure time than most trade people have.

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We often hear of advertisers, in fact we hear of them entirely too often, making the complaint that there are too many automobile papers, and too many advertising mediums appealing to the manufacturers for business. All this is no mere idle dream, but as this world is run on the principle of the survival of the fittest, the advertiser should simply use his best judgment in regard to giving out business, and then let the best of the applicants for it survive. After giving his business, however, to new papers with a high advertising rate, the manufacturer should not complain when

those papers sometimes fail, as was the case some time ago with a monthly which was started for the avowed purpose of putting *THE AUTOMOBILE MAGAZINE* out of business. Several of the wise advertising agents and advertisers bought and paid for high-priced space in the new venture, which appeared twice, then went up in a \$20,000 failure. The living or the dying of automobile publications depends largely upon the good judgment of the advertiser. Yet I, who know him well, must say that his judgment sometimes would do poor credit to a lad in the primary class of a business "college." Thus it makes me tired when the advertiser then tells others, as well as myself, that there are too many automobile papers, when at the same time the complaining advertiser goes into every new thing that comes along, and to do so often ignores a publication of six or more years' standing. If this comment and advice of mine will be of any service to my friends and others in this new year, it is given them free of charge, with best wishes for their success.

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Long felt wants are something those responsible for the starting of publications claim to recognize and promise to fill. My own experience, both as a would-be filler in this direction, and as an abettor and employe of other would be's in this direction, is that most of those who think they are called to filled such wants are only self-hypnotized. What they think is a want which needs filling is only a bottomless cavity wherein money and effort are cast with no earthly chance of ever filling anything. Take the automobile as a fair sample of all this. Why, I never kneel down to say my prayers at night without having to incorporate therein my thanks to Providence for having sent one more automobile publication to aid in the re-

generating and reforming of that host of heathens who think heaven is but some sort of box stall, and angels merely horses, with a few wings and some tail feathers. We have automobile publications for the trade, for the owner, for the agent, for society, for instance, and for I don't know what, but it has remained for a new aspirant to announce the forthcoming publishing of a magazine to be "devoted strictly to the interests of persons interested in automobiling as a hobby." That's the limit!

If there ever was a thing which every true friend of the automobile should oppose to the very last is the allegation that the motor vehicle is naught but a mechanical hobby horse, and any attempt to encourage hobby chasers to purchase automobiles should be combated until the very last. Holmes it was, I think, in his "Over the Tea Cups," who said: "A poet on Pegasus, reciting his own verses, is hardly more to be dreaded than a mounted specialist." And now we are told that the motor-mounted specialist has become so important and influential a portion of the community that he must needs have a publication devoted strictly to his interests! Well, I never would have believed, and what's more, I don't believe it now; but, then, I never prided myself upon being a prime discoverer of "long-felt wants," which may account for my density in the present instance. But all I can say is that if I am wrong in this, and the hobby riders have seized upon the automobile as their favored mount, then I can see a future for the poor automobile that I really would not wish my worst enemy to be cursed with. Nothing that ever became a prime favorite of hobby chasers ever amounted to anything but a blank failure, and I can see no reason why we should expect the automobile to escape if it has really become a hobby horse.

It is a real pleasure to congratulate Harold O. Smith, the new old president of the G. & J. Tire Co., Indianapolis. The two-initial tire needs no bush, since, like good wine, it has made itself well and favorably known by its merits. The same can be said of Mr. Smith, who is deservedly popular among the very many people who have been brought in contact with him, either in cycling or in automobiling. Mr. Smith, of course, will continue his work in Indianapolis, developing the products of the Premier Motor Manufacturing Company, which concern, by the bye, I was pleased to learn recently, will occupy the old Munger cycle factory, a plant which holds the record of having turned out the really first strong light cycle for racing and road purposes ever built in America. Everything Mr. Smith has done in the past has been done thoroughly, and so it is only fair to suppose that the new Premier cars can be depended upon to be the best ones of their kind on the market. The company will turn out about 500 cars for 1904, and all arrangements are well laid for their prompt and early deliveries. The cars will range in weight and power from 1,500 pounds to 2,000 pounds, with plenty of horse power to propel the differing weights. The really wise man will investigate this Premier proposition before he decides upon his 1904 car.

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Bernard M. Shanley, Jr., who is several times a millionaire, has taken to automobiling with great enthusiasm, and in consequence he has a well stocked stable of various machines at his home in Newark, N. J. Mr. Shanley will very likely be seen at the Florida tournament, driving a 40-H. P. Decauville racer. Mr. Shanley, who is extremely popular in Newark, informed me the other day that my note in the

December issue, wherein I said that he raced his big machine against the buckboard, which latter, by the way, was driven by my old friend, E. L. Blauvelt, the one time crack amateur cyclist, was not just as I had pictured it. Mr. Shanley said the real facts of the affair were that the car he owned was driven by another man, and had only three cylinders working, while the track was one-third of a mile, which, of course, made it an absolute impossibility for a big machine to extend itself, whereas the buckboard slid around the corners with the greatest of facility. The buckboard, by the way, was not a buckboard in reality, since it was fitted with a French high speed two cylinder motor, capable of driving it a mile a minute, or even better, on a straight course.

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Everybody will wish Richard Head Welles the best of fortune on his matrimonial touring trip. He is not often referred to as Richard Head Welles, as he is more familiarly and affectionately known as "Dick." The event occurred November 21, and the happy pair are now on their wedding journey. This marriage put me in mind of the Bible parable about the virgins and their various kinds of lamps and oils. You will remember that the wise virgins had their lamps trimmed and burning, but the foolish ones, however, must have had some of those lamps which are made in Philadelphia, because unlike the wise virgins who may have had Solars, the foolish Philadelphia-like virgins had no illumination of any kind.

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The incomparable White steam touring car has an able advocate in the *White Bulletin*, published by the White Sewing Machine Co., Cleveland, edited by Ray D. Lillibridge, a bright, progressive young advertising agent of New



York. The last issue of the *Bulletin* was largely about the endurance run, and printed special articles by the well known Paul H. Deming and Webb Jay. The entire production is a credit to all concerned, and if anything was needed except the vehicle's performances to show that there were two classes of steam vehicles in the run, the White and all the others, the *Bulletin* would do the job.

One of the youngest firms in the automobile business is the F. B. Stearns Co., of Cleveland. I drew attention to this sterling young concern in my November notes, but I want to again refer to them, as they deserve to be referred to owing to the magnificent display they made in the late Endurance Run. I rather expected to see the machine stand up well, as I have been through the factory, and there observed the careful workmanship put in these touring cars, but I did not expect to see F. B. Stearns drive such a heroic race as he certainly did. I understand this company in 1904 will have something unusually fine in the way of a touring car, and a little booklet they have, entitled, "Giving Out the Facts of the Case," should be read by everyone.

I want to acknowledge the receipt of a book entitled "Across the Everglades," sent with the compliments of Captain Hugh L. Willoughby, one of America's greatest touring automobilists, if not its very greatest. Captain Willoughby is the head of the Rhode Island Naval Reserve Service, and some years ago made a remarkable trip across the Everglades, and his book deals with the adventures and discoveries he made during that expedition. The book is published by the F. B. Lippincott Co., Philadelphia, Pa., and the sub-title is "A Canoe Journey of Exploration, by Hugh L. Willoughby, ex-lieutenant

commanding Rhode Island Naval Reserves." The book is illustrated from numerous photographs, and they are good ones, too, taken by the author, while the fact that the book is now in its third edition proves that it has met with a warm welcome. Captain Willoughby recently toured to Florida in his automobile, where he now is engaged in putting his house boat in commission at Palm Beach. Later on he will attend the Ormond-Daytona tournament, where he will act as one of the officials.

"It is my opinion," said Charles Clifton, treasurer, of the Geo. M. Pierce Company, "that the time will come when we will have to provide separate exhibitions for the trucks and other commercial vehicles. There is not enough room for both the pleasure and the commercial vehicles, and as the general public is not interested in trucks and delivery wagons, it would be well to engage a separate building for their exhibition."

I believe Mr. Clifton is right. The big vehicles of the truck class do take up too much room. The fact that there are more than a score of disappointed would-be exhibitors at the forthcoming Madison Square Garden show, who can not exhibit because there is no room for them, should be the means of convincing the National Association of Manufacturers that the time to separate the sheep from the goats has come.

Same old yearly resolutions!  
 Same old hoped for revolutions!  
 Same old saying how we'll act!  
 Same old something—something lacked!  
 Same old promises we make!  
 Same old promises we break!  
 Same old vows we swear each year!  
 Same old things we always hear!  
 Why not say—as something new—  
 Not what we will but hope to do?

THE SENATOR.

## Gasolene Engines for Marine Propulsion

By D. H. Cox

Member Society of Naval Architects and Marine Engineers\*

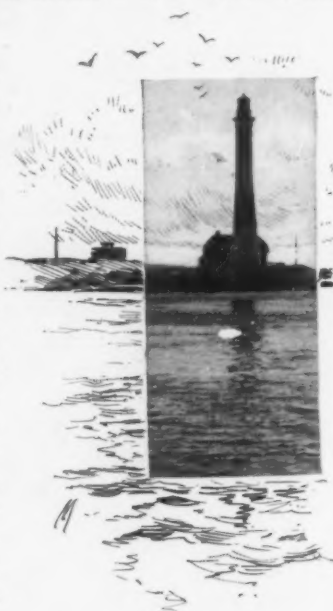
**T**HE development of the automobile having demonstrated the possibilities of explosive gasolene engines for vehicle propulsion, their application to marine work has followed as a matter of course. While the many troubles and accidents that have been experienced by the majority of automobilists have tended to prejudice the minds of many persons against these engines, this should not really be the case. Rather should it be considered decidedly to the credit of an engine of its type that it has been able to be used with any degree of success for automobile work, the conditions of which make its operation a matter of the most careful design and manipulation. When the governing conditions for the automobile and the marine motor are contrasted, it will be seen that in each instance the most serious obstacles in the way of the successful operation of the former are, if not absent, at least minimized in the latter. The heat produced in the cylinders from the high temperatures of the exploded gases can, in the marine motor, be readily drawn off by an unlimited supply of circulating water, while in the automobile the cooling effect of the air must be relied upon; the limiting conditions of weight and space for engine and fuel are not as a rule so restrictive in a vessel as in a vehicle, thus permitting a greater fuel supply, and the

use in design of much larger factors of safety with corresponding increase in freedom from breakdowns; the dust and grit, with their disastrous effects upon automobile engines, are not to be contended with; the conditions of use are more severe for the automobile, forced as it is to go up and down steep grades over rough road beds, with very variable loads and speeds.

After considering these facts it does not appear at all remarkable that the manufacture of marine gasolene engines, having been given an impulse by the automobile, should have gone on increasing in magnitude at almost an unprecedented rate. A cursory glance through the advertisements of any of the technical, or even untechnical, publications of the present day will be sufficient to convince anyone that this industry is in a flourishing condition, even if the surprisingly large number of power boats of all classes now in existence were not

conclusive evidence of this fact.

The application of this engine has been along many and widely different lines. Among the working vessels, they have been largely used by the oyster and fishing fleets along the coast as an adjunct to sail power, thus saving much time in getting to market and making the fisherman more independent of weather conditions. In almost all the fishing villages, also, where dories or surf-boats are used to run out to the nets, many boatmen now



\* Excerpts from a paper read by Mr. Cox before the eleventh general meeting of the Society of Naval Architects and Marine Engineers.

have motors that save much time and labor. In the yachting world they have taken a firm foothold. There are gasoline houseboats, "steam yachts" with masts and dummy stacks, auxiliary schooners, yawls, sloops, and catboats, besides the ever-increasing fleet of "power boats" proper, or launches of the various types, cabin or open, cruising or racing. To see for the first time a fully sparred schooner, for example, running along at a 9-mile gait, with no sail set and no visible means of propulsion, is decidedly novel. It may take away some of the romance of sailing to have a feathering blade up against the stern-post, but think of the convenience when cruising and caught off shore at night in a calm with provisions short and a good harbor near at hand.

Although, as stated, this is not a treatise, in any scientific sense of the word, on the gasoline engine, it does not seem out of place to describe, for the benefit of those who may not be thoroughly familiar with the subject, the general nature of the operation of these engines and their manner of installation.

The motive power is an explosive mixture of gasoline vapor and air in proper proportions, which is ignited at the proper time in the cylinder space generally by means of an electric spark. Gasoline is midway between benzene and kerosene in the distillation scale, and is commonly known in the oil trade as naphtha, the grade used for gasoline engines being usually about 72° Beaumé scale.

The engines are divided into two distinct types—the two-cycle and the four-cycle. In the former the piston receives an impulse once in every two strokes or each complete revolution, while in the latter the explosions occur every fourth stroke or every second revolution. In the two-cycle type the crank space is inclosed in an air-tight case, this space as well as the cylinder being connected to the air

and fuel supply. On the up stroke the piston suction draws air into the crank space through a vaporizer in which it is charged with gasoline vapor, the degree of saturation being regulated by a needle valve controlling the gasoline opening. This charge is compressed by the succeeding down stroke, and by means of a port uncovered just before the end of this stroke is allowed to rush up into the cylinder space, there to be again compressed to from 75 to 85 pounds by the piston during its next up stroke, and exploded just before the end of this stroke. Thus during each up stroke one charge is drawn into the crank case and another is compressed in the cylinder and ignited, while during the succeeding down stroke the ignited charge is expanding and doing work, and the new charge after being compressed in the crank case is transferred to the cylinder preparatory to compression and ignition, the burnt gases having escaped through an exhaust valve just before this. In the four-cycle type the crank space is not inclosed in an air-tight case, and the operations of drawing the charge, compression, ignition, expansion and expulsion, have to be carried on in the cylinder itself. During the first down stroke the charge is sucked in, compressed during the succeeding up stroke and ignited, expanded during the following down stroke, expelled during the next up stroke, after which the cycle repeats itself.

Both these types of engines have their exponents in well-known machines that have been on the market long enough to demonstrate their reliability, and opinions seem divided as to which of the two is the better, taking everything into consideration. Other things being equal, it appears that where saving in weight alone is the main object the two-cycle, with its impulse every revolution, would be preferable; but the gain in power per cylinder is not what would be expected,

as the compression and consequent M.E.P. is not so great as in the four-cycle. Moreover, the inclosed crank space adds more weight to the engine, thus further reducing the advantage.

The matter of weight for a given horse power varies very considerably among the different designs made in this country, some engines being more particularly adapted to racing and others to general work; some makers make engines of different weights to meet the various conditions. Foreign motors, as a rule, are lighter than our own, approaching more nearly the automobile scale of weights. Personally, I think that the reasonably heavy engine is a much healthier development than the extreme racing machine. It seems that we save enough in dispensing with boiler, stack, condenser, auxiliaries, piping, etc., to make a decent allowance to engine weight possible.

As the installation of the fuel tank and supply pipes has much to do with the safety of the vessel, the most important points to be observed will be noted briefly. Tanks are properly made of heavy copper, with riveted and soldered joints. All connections for fittings should have flanges on inside and outside to prevent tearing the copper. A number of baffle plates must be fitted to control the motion of the oil when the vessel is in rough water.

The tank is generally located in a peak compartment, but occasionally near the center of the vessel. In either case, the space in which the tank is placed should be carefully ceiled, and the tank made an accurate fit by peining the sheets to shape in place before assembling them; this prevents any bulging in and out of tank sides, which is bound to make leaky joints eventually. The tank compartment generally has a water-tight bulkhead on each side of it, and in many instances is flooded by having a number of holes through the planking in the region of the water

line. An alternative to flooding the tank compartment is to work a flat across underneath the tank, this and the sides of the compartment being sheathed with copper to a considerable height, thus forming a pan, which is given an overboard drain by pipes carried down and out through the side. The compartment may also be flooded if desired.

In both methods the prime object is to provide an escape overboard for the gasoline in case of leakage or accident. As in any event the tank bottom should not be lower in the vessel than the vaporizer in order to secure a flow even with a small quantity of oil in the tanks, possibly the method in which a flat is worked under the tank is the more logical, particularly as it should result in absolutely freeing the bilge from any danger of gasoline vapor or fluid. The supply pipe from tank to vaporizer should have a cut-off valve just outside tank and before entering vaporizer. The pipe should run directly down from the tank, out through the planking close in to the keel and then direct to the location of the vaporizer, where it will re-enter the hull. Naturally, extreme care should be taken in making up all joints in this piping, and a careful test should be made of the whole system when completed. The tank space, as well as engine room, should be well ventilated. As gasoline vapor is heavy, any system by which the air in the bottom of the compartments is sucked out would be the most effective. This would apply particularly to installations on vessels of some size with inclosed engine rooms. If the precautions suggested are taken, danger from explosion of gasoline should be very small, and has been found so in actual practice, nearly all accidents being directly attributable to carelessness in installation.

The charge is, in most instances, ignited by an electric spark, as before stated,

this spark being generally produced by a break in a low potential circuit of primary cells or a magneto machine, thus causing an induced spark of high tension in the cylinder space by means of a regular jump spark arrangement with Ruhmkorff coil, one terminal being grounded to the engine casting and the other connected to a well-insulated electrode projecting into the cylinder space. The timing of the spark in the stroke effects the speed, and in all properly designed engines is capable of considerable adjustment. In all cases, except when starting, it must occur before the end of the compression stroke, and for maximum speed the highest pressure should be reached just as the piston starts on the down stroke. At higher speeds the time of sparking must be set earlier in the stroke than at the lower, to allow sufficient time for thorough ignition.

In some installations a dry battery is used for the initial sparking, and when the engine is once started the battery is cut out and a magneto driven off the engine thrown in, thus reducing the drain on the batteries. The electric wires must not be run low in the bilge, where they would be affected by dampness or water, or where a spark from a bad connection might ignite escaped gasoline vapor. The batteries, terminals, magneto, and all electric connections must be well protected from dampness and spray to insure proper working.

All wire connections to terminals, as far as possible, should be soldered, and binding screws should have locknuts to prevent them from jarring loose through vibration. In those engines in which the electric spark is not used as the means of ignition, a tube heated by a flame to the proper temperature starts the combustion, this method being employed by at least one well-known maker. Some launch owners prefer to use a storage battery instead of the customary dry cells,

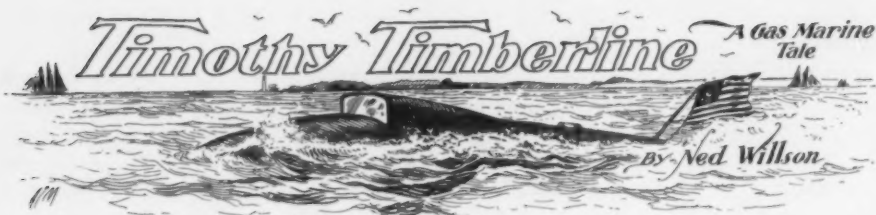
and one of the 1,000-mile automobile batteries will last the greater part of a season for this purpose with ordinary use. By having a spare battery on hand of this description, there seems less chance of trouble than with the primary cells, which have a way of running down unexpectedly. In any case there should always be a reserve to fall back on in the event of a good spark not being produced.

In practically all the gasoline engines now on the market, with one notable exception, an initial charge must be drawn into the cylinders by cranking the engine over by hand before an explosion will be produced and rotation commenced, and when the engine is so started it runs continuously in one direction, reversal being impossible. Accordingly, to make it possible to stop and reverse the propeller, either the connection between the engine and the wheel must be by gearing, or a feathering blade must be used in which the pitch can be altered at will by the engineer. The first method is the most frequently used perhaps, and by many is considered the more reliable, several very substantial and positive friction gear clutches being on the market so arranged that by manipulating a lever the tail shaft and crank shaft may either rotate as one or in opposite directions, or the tail shaft may remain idle while the engine turns over.

*(To be Continued.)*







(Began in December Issue)

**B**EFORE describing what occurred when Tim discovered my identity, I wish to tell you about a race that took place, a few days later, off Put-in-Bay. It was the advent of the automobile boat which, while no new thing to the denizens of the East, was quite unknown on Commodore Perry's battle ground, therefore it can be readily imagined every one was on tip-toe in anticipation of the great event. It was no new thing in that territory to see an automobile beat Father Time at the speed of the hurricane, but to see a boat cut through the water almost with the speed of an express train was sure to be exhilarating and to make sailing races seem tame in comparison.

The races were to be held under the auspices of the newly organized Central States Boat Association. They were to be run on three separate days. The first day there were to be ten and fifteen-mile races for small boats, the second day, a twenty-five-mile race for the large boats, and the third day a durability test of fifty miles in the morning for small craft and in the afternoon one hundred miles for the large and powerful boats. Very little interest was taken in the first day's racing. The attendance was small, being made up principally of those who were staying at the islands and the friends of the contestants. The night of the first day, however, brought boats crowded with human freight, private yachts by the score, and excursions from everywhere. Accustomed as they were to big crowds during the regatta season, the Bass Islanders were taken completely by surprise,

and accommodations were at a premium. Tents were erected by those who were provided with them, and then, at the earnest solicitations of a number of individuals who were unable to find lodgings, two of the excursion boats abandoned their later trips and let staterooms on board at astonishing figures.

The big fellows, that is to say the high-powered racing boats, had nearly all arrived during the afternoon. Two prominent names had been scratched, one owing to the sudden departure of the owner to Europe on important business, and another, an experimental machine which had not yet reached a satisfactory stage in development. The remainder with one exception were anchored in a small bay to the north of Middle Bass. The exception was a yacht registered under the name, Esmeralda, but of whom even those versed in racing topics had not heard. She was anchored by her owner under the evidently fictitious name of T. Timberline. The entry was made in 50-ft. Class A, her principal dimensions being given as 42 ft. o. a., 40 ft. l. w. l., beam, 6 ft. 6 in., H. P., 65. The dimensions were not unusual, but in spite of this fact the boat aroused unusual interest, probably because she was a dark horse, and in every way a mystery. Neither the boat nor her owner had ever been heard of until he had sent in the entry just a few days previous to the race, the president and treasurer of the club standing sponsors. Even the next day the Esmeralda was among the missing, and there was a great excitement among the

newspaper men who had posted lookouts all about the islands in order that one of them might secure a scoop for his paper by getting the first sight of the *Esmeralda*. As nine o'clock approached, the hour set for the twenty-five-mile race, the expectant thousands began to wear looks of disappointment. President Le Blonde alone was the only one unconcerned among the spectators. When approached upon the subject he assured them smilingly that he was not all concerned about the *Esmeralda*, as he had been assured by Mr. Timberline that she would be on hand for the race.

"But, my dear sir," vouchsafed an excited newspaper man, "she is certainly not within five miles of here now, and it lacks but ten minutes until the first gun."

"Still, I see no occasion to be concerned," was the president's laconic reply. "She may arrive at the last minute."

"But, Mr. Le Blonde, you must credit the boat with phenomenal speed, as you know she must be here in five minutes to qualify."

"Still, I see no reason to be alarmed until the starting of the race. I don't see what difference it would make anyway, as there are now six good boats ready for a start, and we're sure to get a good race, *Esmeralda* or no *Esmeralda*," and with that he turned away to give some necessary instructions to the starter. Minute after minute of the time elapsed, and, as the second hands of the watches began ticking off the last minute, disappointment and disgust were depicted on the faces of the spectators. This was specially true of the reporters who were expecting a sensational race.

Mr. Starin, the starter, stood ready with his watch in one hand and the lanyard of the starting gun in the other, ready to give the warning signal. As he raised his hand to give the cord a pull, there rose under the bows of the referee's boat a dark blue object, whale-like in

shape, but with a hood about one-third of its length from the bow, just as the artist has so faithfully depicted it in the title. On either side of the bow in large gold letters ten inches high was the name *Esmeralda*, and the shout that went up from the expectant onlookers drowned the sound of the warning gun, which the astonished starter fired fully five seconds late.

The echoes of the starter's gun had no more died away when like a wreath disappearing in a foggy night the *Esmeralda* sank beneath the waves, and even before a fairly good impression of her appearance had been stamped upon the minds of those about. Nevertheless she had qualified, there being no rule about a boat being present during the time between the warning gun and the starter's signal. However, the uncertainty had passed and the appearance of the *Esmeralda* was now eagerly expected when the starting signal would be given.

The big fellows lined up just beyond Gibraltar, headed in a northwesterly direction practically in the track of the Detroit steamers. By common consent a space was left in the center for the seventh boat, and the contestants stood in solid front three by three with sixty feet of open water between them. The small yacht cannon which was used by the starter had received a new cartridge, and he again stood as before with the watch in his left hand and the lanyard in his right. His eyes and the eyes of the thousands on boat and shore were glued upon that open space of water in the center of the line.

The race was to be a standing start and the long slim bodies of the contestants glowed in the sunlight, their polished hulls looking like nothing so much as glistening shuttles. Slowly the starter raised his hands, and the engineers of the six boats stood with their starting levers in hand ready to set the engines

going at the instant the cannon belched forth its signal. Five seconds were yet to elapse when the water broke in a gentle wave at the center of the open space and the polished green surface of the Esmeralda came into view. It was evident that the operator did not wish to run any chance of being penalized for making a flying start.

Mr. Starin braced himself slightly, and with a quick jerk fired the cannon, when at once the powerful engines began their cannonade, with the mufflers cut out to give them all power possible. The six open boats started like shots from a gun, but for some reason the Esmeralda seemed to lag behind, and a murmur of disappointment arose from the crowd. Faster and faster ran the engines, and the exhausts of their many cylinders ran into one long drawn musical note of low pitch. If the Esmeralda's engine made any sound it was not heard above the din of the others. Something seemed to be wrong with the boat, and she was apparently losing ground. In fact when the boats were almost out of sight, just before they rounded the turning point, the Esmeralda seemed to be about one-quarter mile to the bad. The leading launch rounded the stake-boat in 27 minutes 55½ seconds, and it looked like a record-breaking race. The boats were in single file, with the Esmeralda still a candidate for the booby prize. The Falchion led on the home stretch, her sharp nose parting the water ahead with very little commotion. The Dagger, a needle-pointed craft with very small freeboard forward, was close upon her heels, and the four boats just behind them were scarcely a length apart. For the first six boats it was a magnificent race and a hard-fought contest.

None gained or lost for the first five miles of the homeward stretch, and the crowd had lost interest in the Esmeralda, their attention being taken up with the

struggle between the Falchion and the Dagger, as the latter was now forging ahead and her nose was almost even with the bow of the Falchion. One-half way to finish the Dagger forged ahead, again to be passed by the Falchion. The shouts from the excited crowd rose and fell like the waves of an angry sea. While the other boats were not far behind, they received but little attention from the spectators, so close was the race between the two leaders which were fairly flying toward the finish.

Suddenly a lookout posted on a flag-staff on Gibraltar shouted through a megaphone, "The Esmeralda! The Esmeralda! She is forging ahead like a racehorse." He turned the megaphone in all points of the compass and repeated his cry. Instantly all eyes were turned toward the rear of the line. Sure enough the boat, which some wit had dubbed, "Jonah's whale," seemed to be passing the other boats as if every one of them was standing still.

Faster and faster she came. A newspaper man who had been timing her between buoys announced she was making at least forty miles an hour if not more. She was soon even with the Falchion and Dagger, and was throwing a rolling wave of water to right and left which parted gracefully as it neared the pilothouse and met the water on each side with little commotion. Rapidly she drew to the front until at length she passed the Dagger, which was now leading the Falchion. As she neared the finish line it was seen that there was no hope for the others. When she passed the referee's boat it was amid the shouts of the multitude, the whistles of the steamboats and the explosions of fifty cannon. Twenty feet beyond the line she disappeared beneath the water, leaving the Dagger and the Falchion still fighting it out a thousand feet behind, beaten, but not disgraced.

(To be Continued.)

## An English Example of Speed

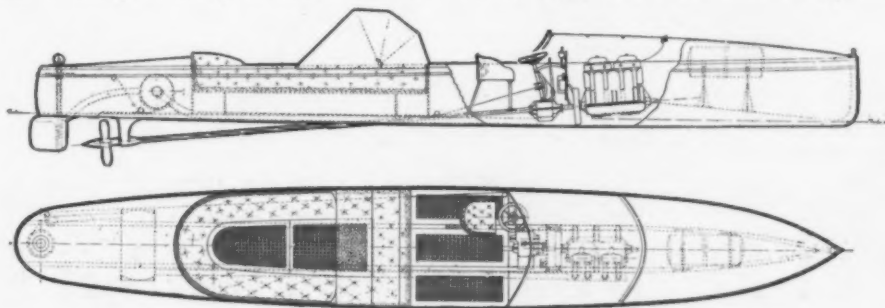
*By Hon. Percy Penniston Deane*

**N**EXT to the French originators of the sport, the speed launch has found its most ardent and progressive followers in Great Britain, thus repeating in the marine automobile the story of the land one, which originated in France, was welcomed in England and evolved to America.

The designs herewith are typical of the latest type of British launch wherein due deference has been paid by the designer to the Briton's inherent love for stability, while he has not in doing so failed to get some of the Frenchman's adoration of speed. The launch is planned to carry as many as fifteen passen-

section of which, that over the motor, is removable. This arrangement not only gives protection to the motor, but it also increases the seaworthiness of the boat, while in no way interfering with the accessibility of the machinery.

The fault with most of this type of craft is that usually they are very badly arranged in regard to the position of the lubricators, ignition fittings, etc., but on this British one it will be noticed that a board is brought up immediately in front of the steersman, and on this the coil, commutator, lubricators, regulating quadrants, etc., are fixed, so that the man at the wheel has them immediately un-



gers, being primarily a pleasure and a fast cruising craft, but she can easily be stripped to such an extent and her immersion reduced sufficiently to convert her into a racing boat capable of the respectable speed of twenty knots an hour. She is 35 feet long by 5 feet deep, and having a flat floor the draught is light, but, at the same time, the stability is quite sufficient for safety.

As is now the accepted idea in boats of this description abroad, the engine is placed well forward, in order that as much room as possible may be given the passengers, while at the same time admitting of the propeller shaft being set at the best angle. It will be seen that the engine is covered by a turtle deck, one

der his eye, and has no necessity for leaving the steering wheel. This latter is of automobile pattern, and is connected with a quadrant on the rudder head by a steel wire rope.

The gasoline tank is placed well forward and contains enough for a run of 200 miles. Immediately behind the steersman is a bulkhead, and behind this a luxuriously upholstered cockpit, protected by a storm hood. The exhaust passes first to a receiver, where, where it is quickly cooled by contact with a certain amount of water, after which it passes right aft close to the floor of the boat into another large muffler, the exhaust gases eventually being discharged below the surface of the water.

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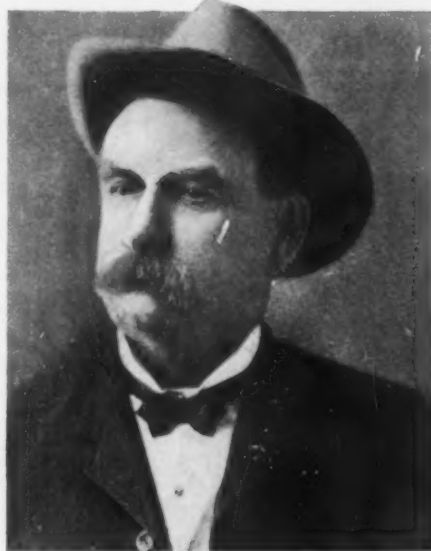
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**Motor** Double cylinder, horizontal opposed, actual 15 H. P. water cooled, of the four cycle type of medium high compression. Motor mounted on steel frame, entirely eliminating vibration.

**Ignition** Jump spark, automatically controlled.

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Sliding gear type, three speeds ahead and reverse.

**Speed** Six to thirty-five miles per hour.

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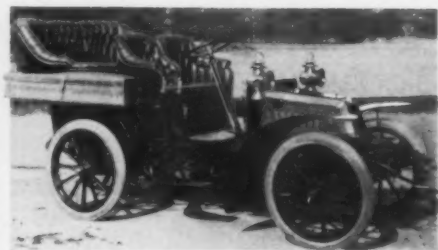
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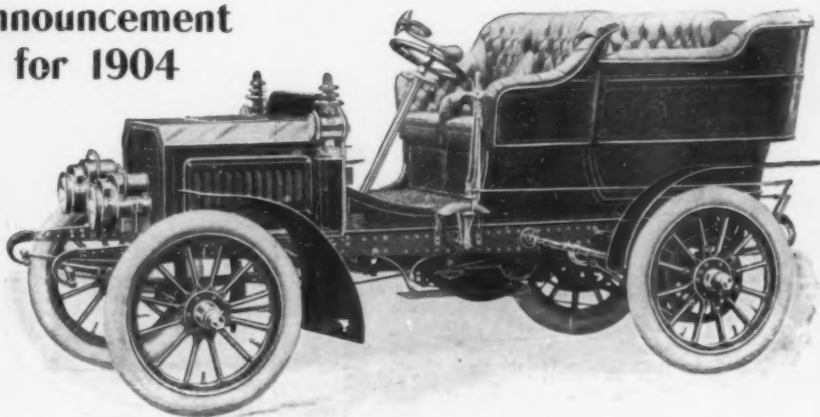
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**Seventh.** Strengthened front axle.

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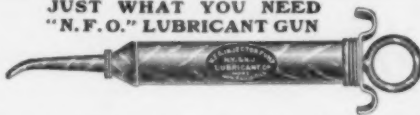
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THE CINDRELLA

No. 9

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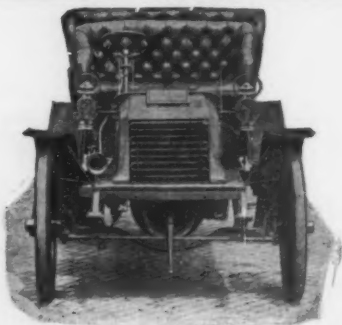
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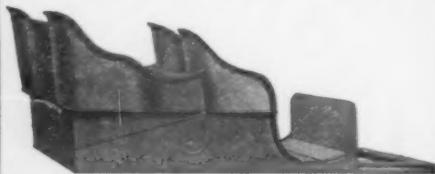
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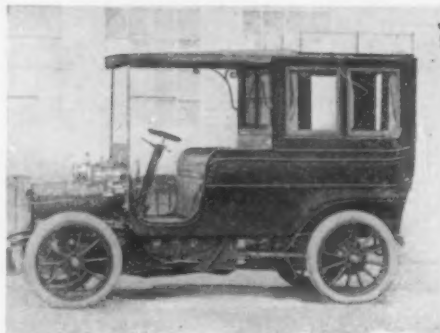
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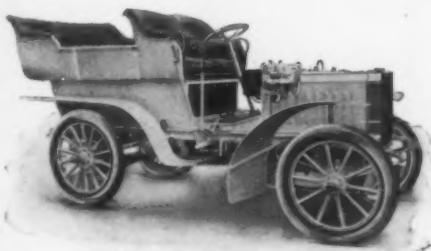
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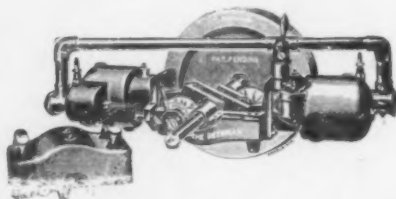
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